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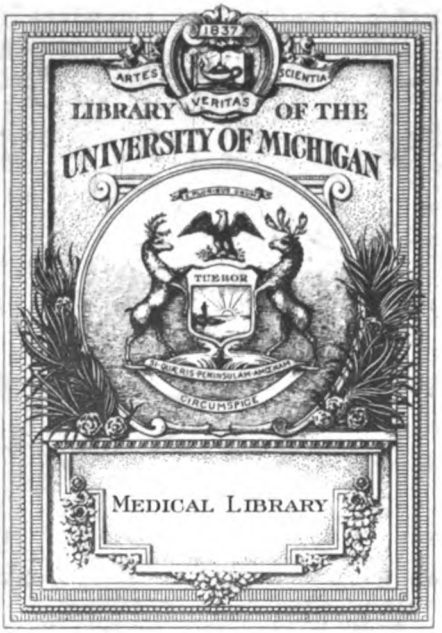

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MEDICAL REVIEW OF REVIEWS

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Volume XXXVI

1930

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MEDICAL REVIEW OF REVIEWS

410th Issue January 1930

SYMPOSIUM ON THE MEDICAL PROFESSION

What's the Matter with the Doctor?

Replies by

Sixty-Six Distinguished Contributors

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NECESSITY FOR A
Comprehensive Physio-Therapy Law
AND ITS RELATION TO
Licensed Physio-Therapy Technicians

By

S. DANA HUBBARD, M.D.

Chief of Division of Legal Medicine of New York City Department of Health

To appear in the March issue

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ROBERT LOUIS STEVENSON [1850-1894]
Medallion by Augustus Saint Gaudens

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Symposium on the Medical Profession

This Symposium originally appeared in these pages in January 1917. It is republished because it has long been out-of-print and because of its unique value. It is not often that so many famous laymen are gathered together in a conference on the profession. Upon the whole, we emerge more triumphantly than we probably deserve.

None of the authors whom we solicited for a contribution for this Symposium seem to resent it except the gifted author of Potash and Perlmutter who castigated us as follows—"To the Editor: The Greek anthology contains no more caustic epigrams than could be applied to an editor who schemes to get for nothing, material for which the Cosmopolitan or Saturday Evening Post will pay generous rates. MONTAGUE GLASS." Thus do we see Mr. Glass "through a glass, darkly." On the other hand the Literary Digest (February 3rd) analyzed the Symposium and presented a comprehensive synopsis in its department *Science and Invention*. William Dean Howells, the foremost figure in contemporary American literature, found the symposium "such good reading" that he devoted to it the entire *Editor's Easy Chair* in the May number of *Harper's Magazine*. Although several years have passed since the Symposium was first compiled, and conditions have changed somewhat, and many of the contributors have passed away, we believe our present readers will likewise find it "such good reading."

Some months after the Symposium was published, several scientists gave their reaction to it, among them, Yandell Henderson, Professor of Physiology at Yale University, who wrote: "It is an encouraging feature of the symposium that so many of the participants lay stress on the social aspects of medicine."

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Contributors to the Symposium on the Medical Profession

Gertrude Atherton
James Mark Baldwin
John Kendrick Bangs
Ellis Parker Butler
Witter Bynner
George W. Cable
Bliss Carman
Andrew Carnegie
Paul Carus
Robert W. Chambers
Anthony Comstock
Eugene V. Debs
Margaret Deland
William C. DeMille
Theodore Dreiser
W. E. B. du Bois
Samuel Fallows
Minnie Maddern Fiske
John Fox, Jr.
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William Dean Howells
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Jerome K. Jerome
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Charles Edward Russell
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John Sobieski
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Booth Tarkington
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Andrew D. White
William Allen White
Israel Zangwill

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Symposium on the Medical Profession

What's the Matter with the Doctor?

Edited by VICTOR ROBINSON, M.D.
Professor of the History of Medicine, Temple University School of Medicine, Philadelphia.

THE GREEK ANTHOLOGY CONTAINED SEVERAL CAUSTIC EPIGRAMS ABOUT THE MEDICAL PROFESSION — WHICH MADE THE ANCIENTS SMILE; AND THE SATIRISTS OF EACH SUCCEEDING AGE, FROM MARTIAL TO MOLIERE, AND FROM SMOLLETT TO BERNARD SHAW, HAVE AIMED THE BARBED ARROWS OF RIDICULE AT THE PHYSICIAN—AND THE UNPREJUDICED MEDICAL MAN WILL ADMIT THAT AT LEAST SOME OF THESE SHAFTS HAVE STRUCK THE BULL'S EYE OF TRUTH.

WE WERE INTERESTED IN LEARNING THE ATTITUDE OF REPRESENTATIVE LAYMEN OF TODAY TOWARDS THE MODERN PHYSICIAN, AND ACCORDINGLY WE ASKED THESE QUESTIONS: WHAT IS THE MATTER WITH THE MEDICAL PROFESSION, AND WHAT SUGGESTIONS HAVE YOU FOR INCREASING ITS EFFICIENCY? OR DO YOU BELIEVE WITH ROBERT LOUIS STEVENSON THAT THE DOCTOR IS THE FLOWER OF OUR CIVILIZATION—SUCH AS IT IS—AND PARTAKES MORE OF ITS VIRTUES AND LESS OF ITS DEFECTS THAN ANY OTHER CLASS OF MEN?

THE REPLIES FROM OUR RENOWNED CONTRIBUTORS ARE BEFORE US, AND RESTING IN THE BELIEF THAT THEY WILL BE READ WITH AVIDITY TODAY AND WILL BE QUOTED IN THE YEARS TO COME, WE PRESENT THE SYMPOSIUM ON THE MEDICAL PROFESSION TO THE READERS OF THE MEDICAL REVIEW OF REVIEWS:

GERTRUDE ATHERTON, who has the felicity to be a great grandniece of Benjamin Franklin, is one of our chief literary women. Among her books are, American Wives and English Husbands, The Conqueror, The Splendid Idle Forties, The Gorgeous Isle, Tower of Ivory, California—an Intimate History, and Before the Gringo Came. Mrs. Atherton seems to think that the physician should pass a test, not only of technicalities, but of tactfulness:

I have been so strong and healthy all my life—or at least since a somewhat delicate girlhood—that I am the last to give an exhaustive personal opinion of the medical profession. Such

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experience as I have had inclines me to a very favorable impression; if I have sometimes dropped a doctor more or less summarily, it has been because I disliked his personality, not because I distrusted his science.

I should say broadly, that leaving the very infrequent touch of genius out of the question, all first rate doctors—that is to say, all doctors who have had the same opportunities—are about alike, and know so much more than we do, that it is impertinence in us to criticize them.

But in graduating there should be some test of personality, and if a man fails to pass on that score, it would be an act of kindness to quash him. Of more than one doctor I have heard people say, "Yes, he is excellent, no doubt of it, but I can't endure him." They get on one's nerves. I can't explain it; unless it is that in subtle ways they are not gentlemen or have some secret taint.

JAMES MARK BALDWIN was professor of philosophy and psychology at the University of Toronto, Princeton, Johns Hopkins, and at the National University of Mexico. He has been president of a host of societies and international congresses, was awarded the gold medal of the Royal Academy of Denmark, and is a member of learned institutes throughout the world, including the Japanese Academy of Social Sciences. He was Harvard lecturer to the provincial universities of France, and Herbert Spencer lecturer at Oxford, where he had previously received the first honorary degree in science ever conferred by that university. He is the author of Genetic Logic in three volumes, the History of Psychology in two volumes, Darwin and the Humanities, Mental Development in the Child and the Race, and several textbooks on the principles of psychology. His various books have been translated into French, German, Italian and Spanish. He edited the Psychological Review, and a Dictionary of Philosophy and Psychology. Professor Baldwin thinks that the system of medical education in the United States should be improved.

I think the medical profession consists of a body of men who LIVE UP TO THEIR LIGHT possibly better than any other.

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The duties and responsibilities are such as to call out all his humanity and chivalry, and it is in this that he shows himself strong. He is called upon to be not only a healer but a confidant and almost, in many instances, a priest.

I say, however, up to *their light,* since medical education has been, in the United States at least, inadequate and insufficiently controlled. The doctor has been handicapped by the need of immediate professional knowledge and he is the victim too often of haste in his preparation. Instead of being a "learned profession," medicine has remained a "vocation" merely, and sometimes a "business." And the profession is hampered by the presence of quacks, visionaries, and impostors. If these be included, then the satires on the profession are justified; but these pseudo-doctors are condemned by the true physician, and we should accept the profession's own definition of its scope and methods.

My advice then is this: Improve as fast as possible the conditions of medical education; elevate the standards of graduation; draw closer the limits of professional good-standing; make uniform the regulations of practice in different States; bring us the departments which lag behind. With this improvement in training and *culture,* the physician will become as wise in judgment as he is now good at heart.

JOHN KENDRICK BANGS, who has edited Harper's Magazine, Harper's Weekly, and the Metropolitan Magazine, is the author of Three Weeks in Politics (he ran for mayor of Yonkers once), In Camp With a Tin Soldier, A House Boat on the Styx, Ghosts I have Met, Peeps at People, The Enchanted Typewriter, Cobwebs from a Literary Corner, The Autobiography of Methuselah, and several other whimsical and humorous books in prose and verse. His contribution to our symposium is also in prose and verse:

Most assuredly do I agree with Stevenson that the Doctor is the flower of our civilization, and partakes more of its virtues and less of its defects than any other class of men; and I have therefore a supreme contempt for the flings indiscriminately hurled at physicians as a class. I can best intimate my feeling

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toward the mosquitoey efforts of a certain sort of soured soul against the noblest of our professions, by appending a few lines written on the receipt of your letter.

He aimed satiric shafts and curses,
His verbal sneers and vagrom verses,
His epigrams
Replete with damns,
At Doctors, Surgeons, and their purses.
On all the Clan of Medicos
He upward turned his ruby nose.
He fleered them, sneered them,
Speared them, jeered them,
Held them sponsors for all woes—
And then—alas!—
It came to pass
He got a "tummy-ache" one day—
Or it got him—but either way
It tied him in a bow-knot gay,
And turned his ruby nose serene
Into a sort of pinkish green
The like of which you've never seen.
And did he seek a Cleric then,
Or one of fame 'mongst legal men?
And did he call for aid from folks
Who bought his funy medic-jokes?
Not he, indeed! He writhed and roared,
"A DOCTOR, QUICK! O LORD! O LORD!
"Get me a DOCTOR, or I'm floored—MY GORD! MY GORD!
And when the Doctor came he pled
While writhing there upon his bed
As any drowning man might plead
The intervention of some deed
Whatever it might be to save
Him from the perils of the grave!

* * * *

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From all of which I've often "thunk"
That sneers like his are mostly "bunk,"
Or in the vulgar parlance, "punk."
Brave words indeed when all's serene,
But when one's nose is turning green,
And in one's vermiform there's fire
That doth suggest a punctured tire,
As full of courage and of hope
As any bubble made of soap!

ELLIS PARKER BUTLER, who achieved national fame as a humorist when he wrote Pigs Is Pigs, sends us this characteristic squib in his native tongue—which is dialect:

Shagbark Jones says: Now take doctors, f'r instance; take doctors and surgeons. What's the matter with doctors and surgeons that ev-body is allus kickin' about 'em nowadays? Didn't used to be that-a-way, did it? The old Doc and the old Dominie used to be all right; not quite so All-fired Wonderful as God, but sort of in His class—sort of John D. Omnipotence in their own lines. When we needed the old Doc he sort of come out of a holy haze us common folks couldn't see into, like an old magician, as you may say, and he fetched his little bag of tricks and his little bunch of hokus-pokus words, and he done his little stunt and went back into his haze of mystery. And we didn't know nothin' and he didn't know much. It was main part look wise and palm the cards. All in the dark! Yep, all in the dark!

Then what? Along come the new Doc and he knowed something. Along come the Surgeon and he seen us mortal bodies was just sort of machines, and he set up in business like a wide-open machine shop 'sted of like a hokus-pokus wizard. Anybody could step in and see Mr. Machinist Surgeon work and see just what he was tryin' to do and how he was tryin' to do it. *And* whether he done it or didn't do it, too. That's what happened. The new Doc and the new Surgeon they was so much better workers than the old ones that they didn't see no need of flub-dub hokus-pokus mystery stuff. They come right out into the open and allowed us to see they were common mortals

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workin' the best they could, and no more perfect than you and me or anybody else.

That's what's the matter with doctors and surgeons now-a-days. They're so dang much better than the old fellers was that they seem imperfect. They're so dang much better that they dare come right out in the open, and when any feller comes right out in the open and gives up hidin' behind superstitious mystery we can see he ain't *quite* as perfect as God Almighty. We can see how good he is but we can see his weak spots, too. We can see he's just a human mortal, doin' the best he can. An' by and large—by and large, mind you—seems to me the Docs try just a lettle bit harder to do the best they can than the rest of us fellers try.

WITTER BYNNER, author of An Ode to Harvard, Iphigenia in Tauris, and other poems of worth, sends us this sextet:

They call it smoker's heart or malnutrition
  But never chase the trouble further still. . . .
No matter how distinguished the physician,
  How deep his knowledge or how steep his bill,
His diagnosis misses the condition
  Of poets who have caught a cosmic chill.

GEORGE W. CABLE, whose writings on the Creoles of Louisiana are a distinct contribution to American literature, sends us this generous estimate of the doctor:

Since the medical profession is a human institution I cannot doubt it has its faults, both oversteppings and shortcomings. But I do not know them. I know no other calling that so faithfully, unselfishly and constantly toils to put itself out of business.

BLISS CARMAN who wrote the refreshing and delightful Songs from Vagabondia with Richard Hovey, thinks there will be better doctors when there are better patients:

I concur with R. L. S. in thinking the doctor the flower of our civilization. If he is sometimes more interested in disease

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than in health, that is but a natural consequence of his training. And if he is often more concerned with remedial than with preventive measures, that is largely the fault of his patients. Being human, they would rather resort to medicines, which still seem somehow magical, than undergo a simple hygienic regimen, though the latter might make a permanent cure, and the former would only give temporary relief. It is to be remembered that the doctors for the most part don't have rational cases to deal with, but very irrational ones. It is as useless to preach laws of sanitation as to preach laws of morality. The fool must still have his (and her) *placebo* as in the days of the medicine-man and the hudoo. Witness Christian Science!

ANDREW CARNEGIE, one of the big men of the modern world, gives the doctor this endorsement:

The medical profession in our day is based upon actual and constantly increasing knowledge, and there is no limit to its progress. The Doctor is indispensable.

PAUL CARUS, editor of The Open Court and of The Monist, is the author of numerous philosophical brochures. We regret that he was under a doctor's care when our communication reached him:

Excuse me for not having answered your letter sooner, but the main reason for my delay lies in the fact that I am under medical treatment at present, and am perhaps not quite impartial in my judgment of the medical profession, but further I have nothing new to say on this much mooted subject.

There is one point, however, which ought to be understood, that most of the unfavorable comments made on the physician are due to the public who misunderstand the human nature of the medical profession. The physician has studied medicine in order to make a living, but the patient expects him to be a healer pure and simple, and expects that his service should be gratuitous. On the other hand there are many physicians who take high fees for very questionable services. But the

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latter case happens in every profession, and we must recognize that none insists so strongly on a high ethical standard of its members as the medical one.

We must not forget that with all the enormous progress science has made, the physician is still as human as any other mortal, and it is difficult for a layman to understand why he shall pay the doctor he consults for advice on a subject of which he knows nothing except perhaps the guesses which have been made by the authorities of his profession.

There are diseases which according to the standard of our present knowledge cannot be cured, but the physician must be paid. Some physicians understand better than others how to make a fair living, but the physicians who are most successful in making money are not always the best according to the ideal standard of the profession, and if the quack flourishes, who is to blame—the quack himself or the public, who prefer his ostentatious services to the work of a quiet unassuming man who employs no trick to enlarge the circle of his clientele?

When a rich man is dying there is an opportunity for physicians. Not one, but several come together, and whenever I see them in consultation I can not help thinking of the passage in the Gospel where it is said of the high priests and elders that they took counsel together how they might put him to death.

ROBERT W. CHAMBERS, an illustrator and playwright, but most widely known as the author of many popular novels, accepts R. L. S.'s estimate of the physician:

I consider the medical profession the noblest of all professions, and I believe that those who embrace it are, as Stevenson puts it, the flower of our civilization, and that there are fewer defects and more virtues among them than among any other class of men.

ANTHONY COMSTOCK, for many years the secretary of the New York Society for the Suppression of Vice, replied to our query a short time before his decease:

I am strongly inclined to endorse the words of Robert Louis Stevenson "that the doctor is the flower of civilization—such

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as it is—and partakes more of its virtues and less of its defects than any other class of men." This applies to the medical profession and not to those men who attach the title of "Dr." or "M.D." to their names and are not connected with or recognized as reputable physicians, but are known as "quacks."

In the early inception of the work to which I have devoted more than forty-three years of my life, we found existing in the community certain conditions that were evil and only evil, in connection with the sale of obscene books and pictures. This was the sale of drugs and articles for criminal purposes. When this fact was brought to the attention of leading physicians in the city of New York and Brooklyn, a long petition was immediately signed and presented to the Legislature of our State and to the Congress of the United States, and within one year's time we had secured efficient laws against the whole system of obscene books, pictures and articles for indecent and immoral use, as it was organized and systematically carried on when I began the present campaign March 2, 1873.

I have arrested many men who professed to be doctors, but these men, almost without a single exception, were not recognized by any medical society, but belonged to the criminal classes; and I do not recall a single instance where one of these so-called M.D.'s was a graduate of any medical college or belonged to any reputable medical society. It is my experience with reputable physicians that leads me to second the words of Mr. Stevenson, as aforesaid.

EUGENE V. DEBS, who was thrice the candidate of his party for the presidency of the United States, is one of the leaders of American socialism. Mr. Debs contributed to our Symposium on Euthanasia, and those who recall his interesting comments will understand why we have solicited him again. We hope Comrade Debs will not take it amiss because a contribution from Mr. Carnegie appears in the same issue—symposiums make strange bed-fellows:

It is a pleasure to comply with your request for my views upon the question of "what is the matter with the medical profession and to offer a suggestion for increasing its efficiency."

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The trouble with the medical practitioner under the existing order is exactly the same as it is with practically every other human being; he is the victim of his environment, and to a greater extent, perhaps, than the followers of any other profession on earth.

The physician is charged with keeping the people well, and if he succeeded in his charge he would starve to death under our present insane social system. In other words, the physician's economic interests and the ethics of his profession are at sword's points. Even so, the average physician I believe to be both professionally honest and conscientious, and he performs his duty as best he can under the conditions and circumstances surrounding him.

Ninety-five per cent of all physical ailments of the race have their origination in poverty—and until poverty is destroyed the human race must continue to be the victim of conditions which no profession can overcome. All that any physician can accomplish under present conditions of society is to attempt to alleviate human distress; he cannot possibly reach the source of physical ills, for that is social.

The physician is dealing continually with *effects* and not with *causes;* he is much in the position of the evangelist who seeks to save sinners from hell under a social and economic environment which manufactures sinners far faster than they can be saved. Dr. Cabot, of Harvard, has suggested that the physician should himself be a social employe—and I agree with this view of Dr. Cabot. In such an event, the medical practitioner would find his economic interests conserved through devoting himself to keeping the people well. He would become the true physician in that the man who entered the medical profession would treat *causes* and *not effects.* He would of necessity be a student of social diseases and the major portion of his time would be devoted to *preventive* practice rather than to *curative* practice. The socially employed physician would "dope" the system rather than the innocent victims of that system as he is compelled to do in the pursuit of his private practice today. Ninety per cent of all treatment of disease today is pure humbug and fraud, not because of the essential

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dishonesty of the practitioner, but simply because the present physician cannot reach the *organic* cause of his patient's illness.

Human beings should at least be as healthy as any other species of animals, but despite all that medical science can do the human race suffers from a greater variety of diseases and is more universally diseased than all other animal species on earth. This is not the fault of the medical profession but of the social and economic environment of the race which lays the foundation for the ill health and disease of each generation before it is born. A well-fed, well-clothed, well-housed race of people, free from poverty or the fear of poverty, would be a race of healthy, normal human beings, and these conditions cannot obtain under the capitalist system and the private ownership of the means of life.

MARGARET DELAND, who has written such famous books as John Ward—Preacher, Dr. Lavender's People, and The Awakening of Helena Ritchie, sends us these lines, which the doctors will consider charming:

I most entirely agree with Robert Louis Stevenson, that the doctor is "the flower of our civilization." To be sure, our civilization is mechanical and materialistic, and its spiritual reactions are not always very clear; but it is the best that we have, and to my mind, the doctor is the best thing in it! That he is open to the temptations of his profession (which Mr. Bernard Shaw has so carefully particularized), and that he sometimes yields to them, is only to say that he is human. I suppose that every opportunity and privilege of life has its own temptations; the theologian can very easily become narrow and arrogant; the intellectual integrity of the lawyer is often at the mercy of his bank account; and that the physician knows his own weaknesses is witnessed by the discussion among doctors which Mr. Shaw's article has aroused. In this connection I once asked a distinguished Boston surgeon, a man of great nobility of character, of true idealism, and endless devotion to his profession, a man known to his patients as "the beloved

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physician"—the late Dr. Francis B. Harrington—which of the three learned professions he thought was the least injurious to its practitioner, theology, medicine or the law? "I think," said Dr. Harrington, "that that profession is the safest, *which is least afraid of Truth.*"

I should feel myself false to the honor and privilege of claiming as friends many men and women who follow the profession of medicine, if I did not thus put myself on record as believing that, though there are bad men who are doctors, most doctors are good men, and that the profession of medicine is the profession that most desires Truth.

WILLIAM C. DeMILLE, the author of such well-known plays as Strongheart, The Warrens of Virginia, and The Woman, has a valuable suggestion for the purification of the profession:

In my opinion the medical profession is suffering from the same evil to which all highly important professions are liable, and that is—that the unworthy members are able to do harm in the same proportion that the worthy members are able to do good. The requirements of the profession are such that only a man of the highest type can properly fulfill them, and as there are comparatively few men of the highest type, it seems inevitable that a proportion of the others must get into the profession. I have seen both types at work and my admiration of the one is only equalled by my disgust at the other. The only suggestion I can offer, as to the method of increasing its efficiency, is to kill all the bad Doctors.

THEODORE DREISER is sometimes called "our most suppressed novelist," since practically all his books have won the disapproval of the New York Society for the Suppression of Vice. But according to H. L. Mencken, who is one of the most brilliant of living critics, Dreiser is "by far the most significant of our latter-day American novelists." The policy which Mr. Dreiser commends in his present communication is an excellent one, and we endeavor to avoid what he avoids:

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I cannot say that I think there is anything wrong with the medical profession as a profession, any more than I would quarrel with lawyers, or engineers, or architects, or authors as such. The trouble with most professions, including priests and soothsayers, is not the tenets which govern them, but the weak, confused, aspiring, selfish animals who are called to be made into professional men. And back of them is nature, compounding and breeding the above described animal. Some of the best men I have ever known have been doctors, and some of the worst. An evil-minded or shallow or careless doctor is to me as bad as a burglar or a murderer. Indeed, I have more respect for the latter for they are often so passionate and confused that they know not what they do. Similarly, a thieving lawyer—of whose kind there appear to be thousands—is lower than the ordinary criminal.

The ideal of each day and age since the world began appears to have been and still is strutting pomp—richly caparisoned power. For this men murder as they go, in an endless variety of ways. The low-minded ignorant doctor—in order to live and be happy—steals in the sense that he takes what does not rightfully belong to him. He doctors where he should not, pretends to a knowledge he does not have, fumbles with life, and when his victims die turns his back on memory. The higher skilled, but equally unscrupulous professional, seeking local station and wealth, over-charges, brow-beats, carries profitable cases along, and bleeds his victims to the last dollar. I know four such eminent practitioners in New York alone. They make a shame of a great art.

But at the bottom of our wiles is conniving nature—necessitous, flagitous, hungry. Men are so hungry. The mass is so dull. We live as sharks on blue fish—we strong. We round up sheep and eat them. We chase the deer and the roe with hounds of subtlety and arrows of the swifter mind. The strong eat the weak. The weak nibble at each other as much as they can. Occasionally giant locks horns with giant over vast possessions. If I were to indite anything it would be nature—brilliant, pyrotechnic, lustful, shameless. But I cannot indite nature because I love it and am glad to be alive. So I accept

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it, run as best I can when in danger, fight as hard as I can when cornered, study as hard as I may to avoid its endless pitfalls, and dance with joy when no danger is nigh. If I were to commend any policy to the rest of my fellows it would be my own. And above all—avoid doctors and lawyers as long as there is any other course.

W. E. B. Du BOIS, who was professor of economics and history at Atlanta University, is now editing The Crisis, and is the author of The Philadelphia Negro, Suppression of the Slave Trade, The Souls of Black Folk, and John Brown. Mr. Du Bois thinks that prophylaxis is the worthiest word in medicine:

My chief indictment against the modern physician is the reluctance which he apparently has in turning from the old idea of curative medicine and dosing and wheedling of patients to the modern idea of preventive medicine, and reasonable confidence between patient and medical adviser. I find in my own experience that it is almost impossible to get a physician to give me rational advice which shall keep me from getting ill. He insists on writing a prescription.

SAMUEL FALLOWS, who was colonel of the Forty-ninth Wisconsin Infantry during the Civil War, and was breveted brigadier-general of volunteers, was chaplain-in-chief of the Grand Army of the Republic, and for many years has been one of the most prominent of American bishops. He is an advocate of mental therapeutics:

I have the highest regard for the medical profession. I do believe that the thoroughly trained, up-to-date Doctor, is the flower of our civilization. I would suggest for the more complete equipment of the Physician, that still greater attention should be paid by him to the study and practice of mental therapeutics, that he may be better prepared to minister to a mind diseased.

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MINNIE MADDERN FISKE, one of the foremost stars of the dramatic firmament, explains former anti-medical sentiment on historical grounds:

Possibly the reason why satirists, from ancient times to the reign of good Queen Victoria, levelled their shafts so often at the physician is because for many centuries the curative science was at a standstill and the occupation of the "leech" was more or less confounded with the occult. It was empirical, at all events. Not until the nineteenth century did progress assert itself in the healing art. Perhaps, in some cases ultra-conservatism exists among our physicians—narrow adherence to rule and rote that does not make for the betterment of human well-being. And perhaps, in other cases (especially among surgeons) there is a tendency toward hasty or arbitrary diagnosis and the needless use of the knife. But, generally speaking, my experience has been that physicians are the salt of the earth. They are sympathetic, patient, generous, and in many respects broader-minded, more charitable, and more practically Christian than the members of the other professions, notably the men of the law or of the church. I have a profound respect and veneration for the medical profession, apart from its researches in vivisection. I do not believe that vivisection is morally justifiable. I believe it to be an act in contravention of the moral law.

JOHN FOX, Jr., the author of such immensely popular books as The Little Shepherd of Kingdom Come, and The Trail of the Lonesome Pine, has probably regretted—at times—that he did not follow the profession of Hippocrates:

I have always said that if I had been a good physician or surgeon, I could meet death with more satisfaction and with an easier conscience than if I had followed any other calling known to man.

HAMLIN GARLAND, the founder and first president of the Cliff-Dwellers, is the author of Main-Traveled Roads, Crumb-

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ling Idols, Rose of Dutchers Coolly, Prairie Songs, Her Mountain Love, The Captain of the Gray Horse Troop, Hesper, and several other books, including a life of Grant. Mr. Garland sees the spiritual side of acetanalid:

Some of the noblest men I have ever known have been doctors, and I have never been one to criticize the medical practitioner. True, he must work for wages like the rest of us, and he makes mistakes like the rest of us, but with all his faults he has much of the angel of mercy to the suffering. As to his "drugs," I have no sympathy with the philosophy which finds a drug grossly material—to me atropine or acetanalid is as mysterious as suggestion. No one knows what matter is or what spirit is.

JAMES K. HACKETT, one of the leading American actors, is especially noted for his rôles in the Prisoner of Zenda, Rupert of Hentzau, and the Pride of Jennico. Mr. Hackett's opinion of our profession is a favorable one:

The physician is the first person consulted in an emergency and the last person paid. I have found them, as a rule, big-hearted, generous men—in many instances far too generous. I have also found a few exceptions, but very few, and I believe they are endeavoring to increase their knowledge and efficiency with every earnest effort in their power.

JULIAN HAWTHORNE has done much admirable work in literature, including a biography of his illustrious father. Mr. Hawthorne feels pathetic whenever he strolls along Chestnut street, Philadelphia:

It is easy to be "caustic," but in classic times things were new, as in childhood, and folk enjoyed playing with their discoveries. Nowadays we have become so familiar with all manner of jests and sarcasms that they pall a little, and we can be refreshed only by truth.

As long as diseases persist, which some doctors, at some times, cannot cure, it will still be open to the easy observers

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to become satirical. That doctors have survived despite them, argues either the feebleness of the satire or the stamina of the doctors, or both. Anyhow, we are lucky that the profession survives. When you compare the progress of medicine in all branches, with the complete standstill of law, for instance, and even its retrogression, inferences are obvious.

The immense fascination of the mysteries of the body, of its mishaps and good fortunes, attracts every intelligent man, and since these vagaries are endless, will always determine certain chosen minds to pursue the clues, and to devote their lives to the work. It is the lure of new horizons perpetually disclosed. It has brought us of late into a region of revelation, never complete, but full of promise, which holds out to us a magic wand to transfigure mortality withal, or cup containing the master elixir. Cancer, tuberculosis, old age—we shall be rid of such errors. But medicine will always find more to learn and do than the past records.

The trouble with doctors is that there are too many persons calling themselves such—believing themselves, too—who have no inborn right to wear the high name. It is saddening to walk down Chestnut street, Philadelphia. They think in symptoms, and never penetrate the interior shrines. From these are graduated most of the quackery brotherhood; though no doubt some who look like quacks turn out pioneers. Neither regulars nor quacks, perhaps, entirely know what they are talking about, but upon the whole, the talk leads forward.

The conservatism, so termed, of the profession, shackles it in a degree; the impulse to draw the line and puts brakes on the wagon. There should be complete freedom of action, here as in all things; we are not competent to say thus far and no further. What is good will last out, and cannot be harmed; what is bad is often that which had been held long in honor. Narrowness and bigotry in a doctor is more ill advised than in any other calling followed by man. The more they are sure of themselves, the less of that will appear.

You have chosen to ask his opinion from an outsider, and must abide by the result. Everybody loves and honors The Doctor; everybody despises and hates some doctors. Some of

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my oldest and dearest friends are among doctors. There is no pursuit which does not tend, in its highest phases, toward some form of healing, bodily or spiritual. All proper human activity has that in view.

WILLIAM DEAN HOWELLS, who is usually regarded as the dean of our living literary men, violates one of his own rules, in order to write this doxology to the doctor:

I never take part in symposiums, but I am glad to say that I think Doctors of Medicine real Doctors of Divinity, and saints of the earth.

WALLACE IRWIN, the clever and virile author of The Love Sonnets of a Hoodlum, Rubaiyat of Omar Khayyam, Jr., Nautical Lays of a Landsman, At the Sign of the Dollar, Chinatown Ballads, and Random Rhymes and Odd Numbers, explains why the physician is frequently the enemy of new ideas:

I am not one of those who make it a pastime to find fault with doctors, but as I have been in a position to observe the methods of several physicians during the past two years, I have come to the conclusion that this is the prevailing fault of the medical caste:

The fact that a physician has the life of his patient in his keeping, as it were, renders him necessarily cautious. In smaller men this caution becomes an inordinate narrowness which renders a great many doctors incapable of entertaining any new idea in medicine. They are too willing to seize upon the weak points of any innovation and condemn it for its few flaws. Professor Ehrlich's discovery was pretty well damned at first, I understand, not because of its defects, but because our practitioners did not know how to apply it. The average family physician today is in the habit of saying "Pooh, pooh!" when twilight sleep is mentioned, and in the same breath explains that childbirth does not hurt the average woman so much as she pretends. The fact remains that the old-fashioned method of delivery is a reproach to science and the heads of

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most of our hospitals will admit—sometimes unwillingly—that twilight sleep, when properly managed, is a safe and painless method of bringing children into the world. The narrow-minded physician is convinced, I believe, that the average layman is an idiot who snatches at every scare-head in the papers. I heard one of America's most eminent pathologists suggest that a patient should die slowly and hopelessly from cancer merely to prove his theory that "any man who claims a successful cancer serum today is a faker."

The trouble with medicine, as I see it, is that any man with an average mind can, by work, obtain a diploma. Exceptional men, men of genius, also go into the medical profession and, of course, do the world an incalculable service. I do not say that the average doctor is not also a benefit to his fellow men, but said fellow men must not make a fetich of him or reverence him as one who has acquired merit through the offices of a mysterious priesthood.

JEROME K. JEROME, whose Three Men in a Boat and Idle Thoughts of an Idle Fellow, are among the classics of English humor, writes to us in deadly earnest:

For the commonsense "Doctor," combination of the more intelligent nurse and the higher educated Sanitary Inspector, I have every respect. But the cock-a-whoop "Physician," combining the fanaticism of the medieval priest with the ignorant pretension of the Red Indian "Medicine Man," I confess somewhat tires me. What so many of your profession fail to understand is that medicine is not a science. At best it is an art. At worst a make-believe founded on credulity and fear. The doctor of today stands in the shoes of the medieval priest. In the days of the Inquisition it was our souls that we were expected to hand over to his keeping. If we did not follow his instructions (and incidentally subscribe to the church funds) we were to go to hell. We could not argue with him. He claimed to have got his information from God, and any layman who doubted his claim was to be burnt at the stake. The medicine man of today claims precisely the same omnipotence in

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respect to our bodies. If we don't do everything that he tells us he condemns us to future torture and disease, and if, looking into the examples round us, we venture to doubt his all-knowledge, he demands from the government the right to imprison and to fine us. As Priest he dealt in incantations. As Doctor he inoculates us. All we know for certain is that the disease with which he inoculates us we do get. There is no doubt about that. We also know that in spite of the inoculation we die quite easily from the disease to which it is supposed to make us impervious. The Doctor replies that but for the inoculation we should have died quicker and more often, an argument to which it is somewhat difficult for us to reply. So we submit, and incidentally pay the fees demanded. Half the time of the medical expert is taken up in explaining the mistakes of his predecessors. What they told us up to twenty years ago we now know to be all nonsense. But with a fine absence of humor the medical expert is quite convinced that we have in this particular year reached the limit of medical divination and that further mistakes therefore are impossible. To the observer the whole thing is an interesting comedy; for the sake of humanity one would be glad if the medical profession could learn a little of the modesty and humility that goes to the making of true knowledge.

DAVID STARR JORDAN, the distinguished chancellor of Leland Stanford Junior University, perhaps does not belong in this Symposium, since among his numerous degrees is also an M.D., but he is better known as author, educator and publicist, than as a member of the profession:

I believe that there can be no calling in life nobler than that of the physician. The honorable physician stands on the one hand on the advance line of science and, on the other, in the most intimate relations to human life, giving his aid and sympathy in times of deepest stress, reading inscriptions which like those "on Dighton rocks are only to be seen at dead low ebb."

And the work of the physician is none the less noble that

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he carries on his work, indistinguishable, so far as the man on the street is concerned, from a host of pretenders, emotionalists and dealers in short cuts of every kind and description. Brass sometimes looks very much like gold. The true physician illustrates the difference.

GEORGE KENNAN, the telegraphic engineer who revealed the horrors of the Russian exile system in Siberia, appears to be an admirer of the achievements of modern surgery:

I don't know much about doctors, but my impression is that they, like the rest of us, do the best they can in a world full of problems and perplexities. Their best, however, reaches at least as high a level as the best in other fields of investigation, and in surgery, perhaps, rises above it.

CHARLES RANN KENNEDY, the playwright who has written The Servant in the House, The Terrible Meek, The Winterfeast, The Necessary Evil, and the Idol Breaker, is pro-physician:

I'm on the side of the Doctors, speaking generally; and I consider it blasphemy against the Holy Ghost, to deny the mighty and inspired things the medical profession has done and is doing. Of course there are medical quacks, as there are religious.

WILTON LACKAYE began his stage career with Lawrence Barrett in Francesca da Rimini. Among his most famous roles are Svengali in Trilby, Reb Shenwel in Children of the Ghetto, Curtis Jadwin in The Pit, and John J. Haggleton in The Battle. Mr. Lackaye thinks that the modern physician is in too great a hurry to become a specialist:

It is impossible that knowledge of that very complicated mechanism called "man" can ever be an exact science, but a compilation of the discoveries of the century, in medicine, I think will show that it has at least kept pace with other sci-

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ences. There are men who spend their healthy moments scoffing at religion; others who exercise sound lungs in deriding medicine, but I have noticed that when sickness comes, the one shrieks for the priest and the other begs for a doctor.

The lowered death rate is all the argument medicine needs. If there is anything in which a layman is justified in criticising the practice of medicine I should say it is in seeking specialties before a knowledge of the whole animal has been acquired and in too ready an abandonment of hygiene and pharmacopeia for the knife. I should like to see more physicians with the up-to-date discoveries in their reach, and the *general* knowledge of the old family physician.

BRUNO LESSING is known for his stories dealing with Jewish life—Children of Men, Lapidowitz, and With the Best Intentions. He thinks the world lost some good blacksmiths when certain individuals became members of the medical profession:

I could not adequately express in words my admiration for those able, self-sacrificing, and enthusiastic practitioners whose devotion to their profession has been the only impulse that has raised medicine from its crude state to its present scientific status. And if I tried to express my feelings toward the incompetents who might with greater benefit to the world have selected blacksmithing for their vocation, I would probably violate some section of the libel law.

Perhaps the best way to increase the efficiency of the medical profession is to have more of the former and less of the latter kind.

HUDSON MAXIM, the first to make smokeless powder in the United States, is the inventor of maximite, stabillite, motorite, and other military products. There is a military sweep in his words:

What do I think of the doctors?

Truly, it is my opinion that, if God were to re-work man to

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get the cussedness out of him, and actually to shape him into resemblance of the Divine Image, he would take the skillful, honest doctor for his model, while as a pattern for Beelzebub he would take the dishonest, ignorant physician.

The dishonest and ignorant doctor is the most dangerous animal in the world, while the honest and skillful doctor is possessed of the most blessed of all human virtues—that of saving life."

GEORGE B. McCLELLAN, formerly Mayor of New York, is willing to vouch for the medical profession of the city which he governed from 1903 to 1909:

During the six years that I had the honor to be Mayor of New York, it was my privilege to be constantly and intimately associated with a large number of members of the medical profession. I may have been peculiarly fortunate in the men with whom I was associated, but be that as it may, I cannot help thinking that the standards of the medical profession are higher than those of any other equally large body of men. So far as it is possible for a layman and an outsider to judge, I do not think that in New York, at least, there is anything wrong with the medical profession.

S. S. McCLURE, who established the first newspaper syndicate in the United States, became a national figure by his feats with McClure's Magazine. Mr. McClure thinks that most physicians and farmers could stand some improvement. He makes an exception, however, in favor of six favorite doctors:

To my mind there are six great doctors which if properly used, will keep a man well. They are: exercise, rest, food, sleep, sun and work. Now it is my impression that the medical profession is more and more coming to realize the principle involved in this statement I just made. I think it is true, however, of the medical profession as it is of the legal profession and half of the other professions I know, including farming,

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that the majority of people are more or less incompetent the way God made them. Take the matter of surgeons and dentists —what a small percentage would one be willing to employ for serious operations.

KELLY MILLER, the dean of the College of Arts and Sciences of Howard University, is a mathematician of note, and the author of Race Adjustment and Out of the House of Bondage. Professor Miller thinks that modern democracy has sounded the doom of caste:

The progress of democracy and the dissemination of intelligence among the people are rapidly depriving all of the old-line professions of their pretensions and supercilious assumptions. The business man who moves along the even tenor of his way without any display or spectacular assumption of superiority over others, assuming no distinction of manners, dress, carriage or visage, has set the pace which all of the professions must follow. So long as the minister feels that he must wear a different cut of clothes, and assume a pious and unnatural tone of voice, he will decline in the respect and esteem of the level sense and common judgment of the intelligent layman.

The professional man is merely one who, by special devotion, has pushed his knowledge and experience along the line of his profession farther than the ordinary intelligent layman has had the opportunity to do. Any assumption of superiority or infallibility that does not rest upon this simple basis will be resented and ridiculed. The spirit of democracy abhors pharisaical hauteur which vaunts itself in the attitude, "I thank Thee, Lord, that I am not as other men."

A knowledge of biology, the vital principles of life, and an appreciation of sanitary and hygienic regulations are becoming a part of the education of the common citizen. The physician merely has a larger knowledge and experience in this domain. Any other assumption is incompatible with the spirit of democracy. If the minister or the physician, lawyer, scientist, teacher, or any other professional man wishes to retain the highest respect and esteem among his fellowmen, he must not

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affect to construe his profession into a caste, but must follow the example of the business man and pursue his work on the level.

R. F. OUTCAULT, the cartoonist who created Hogan's Alley, the Yellow Kid, Buster Brown, Mary Jane and Tige, has more admirers than the President. According to Mr. Outcault, faith is the keystone of the healing art:

What's the matter with the doctor? It is a terrible task to tell what is the matter with anything. If we really knew what was the matter with things we should soon have a perfect world. The Doctor, himself, is guessing what's the matter.

Faith is as real a thing as the law of gravitation. Whether he be of Paul or Appolus he must create faith in his patient. It must first be faith in him. Faith in something is necessary; whether in some bones from an old cow's tail, called the relic of Saint Something, or some polluted water called sacred or clean water from *some "Spring,"* or a book that one places his hand on and regains his sight. "Thy faith had made thee whole," is the whole story in every case whether it had to be assisted by medicine or surgery or not, and the "old doctor" knows it. What would humanity do without its doctor? What can the doctor do with a patient who has no faith in him or his medicine? "Therapeutic Suggestion" or the law of Mental Healing is worth while in every doctor's library and more than worth while in his practice. What have you been doing and what kind of a disposition have you got are more important questions than where do you hurt?

God bless the doctor, there's nothing the matter with him; faith in the very name of his profession cures countless thousands.

ALTON B. PARKER resigned the chief justiceship of the Court of Appeals of New York to accept the Democratic nomination for the Presidency of the United States, but was defeated by Theodore Roosevelt. He has been president of the American Bar Association. This eminent jurist renders a decision entirely in favor of the doctor:

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Where will you find another man to match the average doctor. He lives the true altruistic life, devoting himself unreservedly to others. His skill and time are yours on the shortest notice, in the blackest hour of night, and in the worst of weather. His devoted unselfishness, ready sympathy and healthy good humor but increase with his gray hairs. I, for one, expect to find a neat M.D. shingle decorating very many of the more palatial Heavenly Mansions on Goodandfaithful Avenue.

BLISS PERRY, at one time the editor of the Atlantic Monthly, is now professor of English literature at Harvard, and was Harvard lecturer at the University of Paris. Among his books are The American Mind, and lives of Whitman, Whittier, and Carlyle. Professor Perry thinks that boys who have had but two years of college work are unprepared to begin the study of medicine:

In spite of all the satirists—whom I confess I am fond of reading—I hold that the members of the medical profession perform their human job far better than most of us. I do not mind the whimsical exposure of doctors' foibles by a Rabelais, for he was a doctor himself, and apparently a ripe and good one. The attacks upon the profession by cartoonists and queer religionists and those who prefer lap dogs to babies are doubtless irritating but they are negligible. My only fear for the medical profession in America is, that under the economic pressure for earlier completion of professional education, and in the natural rivalry between medical schools, students will be enrolled in increasing numbers without a sufficiently broad training in liberal studies. To be specific, the admission to medical schools of boys who have had but two years of college work and that mainly in certain sciences only, seems to me to hint at a future narrowing of the intellectual interests of American physicians. It is in great measure the range and vitality of these interests that have made the members of your profession so personally companionable and so humanly useful.

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T. V. POWDERLY, who was thrice elected Mayor of Scranton on a Labor ticket, has been United States commissioner-general of immigration, and has long served as chief of the division of information of the bureau of immigration. He is author of Thirty Years of Labor, and the History of Labor Day. Mr. Powderly thinks that certain surgeons are intent on amputating their patients' pocket-books:

I have little use for medicine but a high regard for the doctor, not the doctor who prescribes drugs, but the one who prescribes such a course of living as will tend to preserve health without drugs.

I know four men who were upright citizens at one time. Now they are dope fiends and from them I learn that they were introduced to the nerve quieting drug by the family physician. I had symptoms similar to those described by one of them and recall the fact that my family physician, the late Dr. William E. Allen of Scranton, told me to stay in the open air, dig in the earth, swallow pure food and since pure air was inexpensive and plenty, to swallow lots of that too. He refused to administer drugs. Robert Louis Stevenson had such a man in mind when he said: "the doctor is the flower of our civilization."

From my point of view, and it may be the wrong one, I believe the trouble with the doctor is just what ails other people: he wants to get rich and when that affliction grips a man, medicine won't save him. A doctor anxious to amass wealth has lost or lessened his hold on conscience and without conscience a doctor may become very dangerous to society.

Modern society is spoiling many a doctor. He would rather have a clientele of ultra fashionables than one of moderate means. To my mind the ideal doctor is the one who meets all, serves all on an equality. I am told that here in Washington there is a skillful physician who refuses to respond in daytime to a call from a workingman or woman for fear that his rich patients might see him entering a humble habitation. That man is not in love with his noble profession and the man who does not love and respect his calling should quit it—unless his object is to make money.

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No profession or calling stands higher in my estimation than the medical and when I see, or learn of a doctor who goes wrong I don't blame the profession; it's in the man or it wouldn't crop out in the doctor.

Personal observation prompts me to say that no other profession has produced so many unselfish, self-sacrificing, generous men as the medical. If it's the yellow streak in the man that crops out in some doctors, there is that in the practice of the healing art to bring out the best and most humane in the practitioner. Tenderness, sympathy and generosity are the chief attributes of the great majority of physicians that I know.

One thing I cannot understand about doctors. The old advice: "be not the first by whom the new is tried nor yet the last to lay the old aside" should be kept in mind by men who doubt their ability to try the new, nevertheless the doctor should give the new a test instead of setting his face against it. Everyone of good common sense now realizes that chiropractic treatment, intelligently and by competent hands administered, is beneficial. I find that certain movements of the body relieve constipation, massage is useful. Wouldn't you think the up-to-date doctor would annex these aids to health and prescribe them for his patients when necessary instead of fighting them as at present?

I have talked with perhaps twenty doctors in this city who asserted that chiropractic treatment would be beneficial and while they all said it should be applied by competent hands, not one of them would prescribe it or use it. Either they regarded themselves as incompetent or they preferred that it should be left to incompetents. Maybe they were lazy, but in any event they lied to me or else they weren't honest with their patients in not giving them what they admitted to me would aid them.

When a man who is ailing, or thinks he is, consults a doctor that doctor should not prescribe for him until he knows all about his temperament, habits, and occupation that he can possibly learn. If after strict examination he believes his patient needs exercise, fresh air or change of diet or habit he should tell him so. Here is what happens in a great many cases

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now: Doctor grabs patient by the wrist, looks solemn and says: "stick out your tongue." While feeling the pulse and looking at the tongue a mental inventory of the patient's financial standing is being taken. Then turning to his desk the doctor writes a few important looking words on a piece of paper and says: "Take a spoonful after every meal and one before going to bed. Two dollars please." That kind of a doctor would render a greater service to humanity by following the horses on the streets with a stiff broom and a shovel than by practicing medicine.

A doctor should tie his patients to him by gaining their confidence, knowing all about them, by being candid with them and by telling them just what they need instead of dosing them whether they need it or not.

Often have I heard a man say: "I went to Dr.——he gave me some medicine to take and for a while I felt better but in a short time I became worse than ever. I won't go near him again."

Surgical operations for everything from baldness to bunions have become so common that a poor man hesitates about going near a doctor for fear of having his pocket book amputated.

That last remark of mine leads me to the suggestion that "The Medical Trust," as it is termed by the irreverent or profane, having had such strict laws passed for its own protection and advancement shouldn't object to the people, who pass these laws, adding one more to the collection of statutes by making medical men servants of the state and thereby regulating them as they attempt to regulate the rest of us.

WILLIAM A. QUAYLE, who was professor of Greek at Baker University, is bishop of the Methodist Episcopal Church. Bishop Quayle has observed that physicians are ready to treat even those patients who possess no pocket book:

From my experience with physicians in a ministerial life of twenty-five years in various larger cities of the United States, I have found the physicians, as a rule and in very heavy ma-

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jority, to be painstaking, considerate, courteous, manly men, whose skill was at the service of any who had need, however incompetent such needy person might be to pay for the services rendered.

Jibes are pretty cheap and are pretty plentiful against all persons in public employ, but they are not of much depth nor should they be given very weighty consideration at the hands of thoughtfulness.

I doubt that anyone acquainted with the average physician, could give other than a good character of him. They do not know all things, but they do not profess to, and therein differ from the quack. In consequence the quack gets many patients from the orthodox physician, who needs to know what is the matter with people before he is able to cure them. The quack, the less he knows what is the matter with people, the more capable he is to cure them. When his patient and himself have met, two quacks have arrived.

WILLIAM MARION REEDY, the editor of The Mirror, is one of the most gifted of American journalists. For years we have wondered at the quantity and quality of his weekly output. Mr. Reedy thinks that doctors should be skeptics:

There is nothing wrong with the profession as a whole. Individuals go or get wrong, but the majority of people in any profession is all right. I can't see or say anything that would help to increase the efficiency of the profession, except possibly to suggest that the members endeavor to keep an open mind as to all that is going on in the world. If they do this they will keep the profession from its greatest danger: that of petrifaction into an exclusive caste or hierarchy. There is nothing more becomes a doctor than a healthy liberalism, and this implies a certain amount of skepticism as opposed to dogmatism, pseudo-scientific, medical or theological.

FREDERIC F. REESE, the Bishop of Georgia, says that if not for the doctors, he would not be in a position to respond to our communication:

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In justice to my many friends in the medical profession I ought to say what I feel. This is the result not of any very serious consideration of the question you propound about the medical profession, but of personal experience with doctors and surgeons. I do not know that it is very valuable. But I have been the recipient myself of so many kindnesses from these gentlemen and have known of so many generous and thoughtful acts of theirs in ministering to the needs and necessities of suffering humanity that I should be ungrateful if I did not testify of that which I have seen and heard. Whether anything be wrong with the medical profession or not, I do not know, but I am like the man in the New Testament, who, when asked some very difficult questions about our Lord, replied that he did not know, but that one thing he did know "whereas I was blind, now I see."

I do know that the doctors have been of great assistance to me and that I am living now and able to work because of their skill in diagnosing and curing disease. I think I did discover, however, during an experience lasting a year or more that the lack of a thorough diagnosis was the cause of a protracted illness. I sometimes think that in spite of the scientific flavor that surrounds, of course, the medical profession, that there is a lack of thorough diagnosis frequently when it might be had. Of course, it is very difficult to see inside of a millstone unless there is a hole in it and it is very difficult to see inside of a man's body, but in some cases the ordinary practitioner, it seems to me, neglects practical methods of diagnosis which might be employed.

Without being extravagant or superlative, I feel that the doctor and surgeon is an honor to humanity and while it may seem sometimes that they know very little, still they know a great deal more than we do and when we need them, they give us the best and most loyal service, as a rule, of which they are capable, and very frequently without money and without price.

AGNES REPPLIER, who received the Letaire medal of the University of Notre Dame, is well-known for her essays and her Roman Catholicism. She is the author of Books and Men,

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Points of View, Essays in Miniature, Essays in Idleness, In the Dozy Hours, The Fireside Sphinx, In Our Convent Days, A Happy Half Century, Americans and Others and The Cat. She is afraid of the esprit de corps of doctors:

I have no criticism to pass on doctors, save that their esprit de corps has reached a point where it ceases to be a service, and threatens to become a peril to the community.

ALICE HEGAN RICE, who became a celebrity upon the publication of Mrs. Wiggs of the Cabbage Patch, is the author also of Lovey Mary, Sandy, Captain June, Mr. Opp, A Romance of Billy Goat Hill, and the Honorable Percival. Mrs. Rice wants the doctors to remember that souls can be sick as well as bodies:

The chief fault I have to find with the medical profession today is that it emphasizes the material to the exclusion of the spiritual. The physician to whom the human body "smells of mortality," too frequently ignores the great invisible ills that dwell in a sick soul. A great doctor ought to be a physician, a preacher, and a wise friend all rolled into one.

As to your question about medical men possessing fewer defects than any other class of men, I do not think that is true. When they are nice, they are very very nice, but when they are bad they are a little more horrid than other men!

One virtue I think they can claim above any other class of men and that is unselfishness. I cannot remember at this moment of ever having known a really selfish doctor!

AMELIE RIVES created a stir when she wrote the novelette, The Quick or the Dead. She is now the Princess Pierre Troubetzkoy. She is also epigrammatic:

I think there is nothing better than a good doctor, and nothing worse than a bad one!

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CHARLES EDWARD RUSSELL, who was twice the Socialist candidate for Governor of New York, has found time throughout his busy journalistic career, to write these books: Such Stuff as Dreams, The Twin Immortalities, The Greatest Trust in the World, The Uprising of the Many, Lawless Wealth, Thomas Chatterton, Songs of Democracy, Why I Am a Socialist, Business, Stories of the Great Railroads, These Shifting Scenes and The Story of Wendell Phillips. Mr. Russell is of the opinion that the whole medical system is fundamentally wrong, and that physicians add only to the miseries of mankind:

Physicians are like other men. As a rule they do the best they can according to their lights. No doubt among many of them a very high standard of purpose obtains. They are not to be blamed because the whole system of medical science is wrong any more than other university graduates are to be blamed because the whole system of instruction in economics is wrong. Medical science teaches its student that the way to restore a diseased person to health is to pour more poisons into his system. The universities teach their students that the way to restore society to health is to increase the poisons in its system. Both graduates go forth into the world and add to its miseries being honestly convinced that they are doing good. The philosopher does not blame either. What else could you expect in view of the kind of sublimated nonsense that in both lines of instruction is regarded as sacred writ?

The physicians are not even to be blamed as individuals that they multiply the number and names of their imaginary diseases and then fasten these by a necromancy of terror upon the human race. They do this in good faith and with the best of intentions. They have been taught to do it, just as the student of sociology is taught that a system that provides superfluity for the few and destitution for the many is divinely ordained and must last forever.

But because the witchcraft called medical science and the humbug called sociology teach these absurd things is no reason why the wise man should be deceived about them. There is just as much reason for the existence of 92 per cent of the diseases catalogued by medical science as there is for the exist-

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ence of gigantic fortunes and widespread poverty. Some day the world will be emancipated from both. When we have a sane economic system we shall have a sane medical system. But so long as disease, or the fear thereof, is the sole source of the physician's livelihood (to win which always becomes harder and harder), what else shall we look for but a new disease every hour and ten new remedies that fail to cure it?

ERNEST THOMPSON SETON was official naturalist to the government of Manitoba, in which capacity he published Mammals of Manitoba and Birds of Manitoba. He has illustrated many books dealing with animals, and has written several, among the most popular being Wild Animals I Have Known and Lives of the Hunted. He founded the Woodcraft Indians, and we are surprised that his contribution was written on paper instead of birch-scroll:

The primitive American Indian held that the body was the temple of the spirit and the instrument for its development, therefore it was his duty to reverence and perfect his body. The medicine man helped his people to do this. He was on the noblest plane of power.

CHARLES M. SHELDON, who is minister-at-large of the Central Congregational Church of Topeka, edited the Topeka Capital for one week, as he thought Christ would edit a newspaper. He is the author of several religious books, among the most successful being Robert Hardy's Seven Days, The Crucifixion of Philip Strong and In His Steps. It is Mr. Sheldon's belief that the children of Hippocrates can serve mankind best by adopting an anti-alcoholic attitude:

I have always had great respect for the medical profession. The one greatest service the physician of today can render humanity is to cease prescribing alcohol as medicine and tell the truth about the effect of it in patent medicine. Any physician of today who uses or prescribes alcohol is either a fool or a

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quack, or a coward, who is afraid of the age-long ignorance of his patients.

UPTON SINCLAIR became the most-discussed man in the country when he exposed the Chicago stockyards in The Jungle. For a long time America ate less meat. He has several other interesting volumes to his credit. Mr. Sinclair thinks that our profession does not advance unless it is kicked forward, but he says we should not mind this:

The first trouble with the medical profession is that, like all others, it is not socialized. The doctor is asked to scramble for a living, instead of to serve humanity. He is asked to prevent disease and thus wipe himself out of existence—a hard thing to ask of any group of men in this competitive world.

The second trouble with the profession is that like all other professions, it lives in a world which is moving; and being an established thing, it has a tendency to fall behind, to grow conservative and bigoted. Hence it has to be continually prodded —which is what you were asking about. Don't worry about this; being prodded is the best thing in the world for any man or group of men. See, for instance, how many interesting things it has caused you to learn about Twilight Sleep.

JOHN SOBIESKI is a direct descendant of John Sobieski, the Polish King, who in the seventeenth century, defeated the Mohammedans at Vienna; at the age of four our contributor lost his father, who was executed by the Russians for leading the last Polish uprising. During our Civil War, young Sobieski was in the Army of the Potomac. Later he enlisted in Mexico against Emperor Maximilian, and was chief of staff of General Escobedo, being present at execution of Maximilian. As a member of the Minnesota House of Representatives, he believes he introduced the first bill advocating woman suffrage. He was one of the founders of the Prohibition Party, and was its first nominee for office in the United States. He has written the Life of King John Sobieski, John the Third of Poland. Mr. Sobieski has not had much experience with doctors, but he thinks well of them:

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I do not feel myself fully competent to give an opinion, as I have never given the matter much thought, and neither myself nor family has been unfortunate enough to require medical service. While not agreeing with all the ideas of that profession, for no doubt they have their fads and notions that last only for a day, yet upon the whole I regard them as a noble, self-sacrificing profession who have done much for the world's betterment, and for the elimination of suffering of our race, and they are entitled to the gratitude of mankind.

JOHN PHILIP SOUSA, the most famous of our bandmasters, has toured the world, receiving honors from various governments on his musical way, but Sousa and His Band is most distinctively an American institution. His contribution is a symphony-in-brief:

The Father Confessor of the world is not the Priest but the Physician. Faith in your doctor is the all-powerful panacea for recovery from illness. When the medical man is glorified in your eyes, fear departs from your soul. All in all the doctor is the most important factor in the progress of the world.

JOHN SPARGO is the author of The Bitter Cry of the Children, The Commonsense of the Milk Question, Life of Karl Marx, and other volumes written from the socialistic viewpoint. Mr. Spargo thinks that the principles of birth-control should be applied to physicians:

I would not speak dogmatically upon the subject, but I have long held the opinion that the medical profession is overcrowded. There is a constant overproduction of doctors. If all the doctors were really qualified for their highly important work this overproduction would be serious enough. The inevitable struggle for existence of a very large number could not fail to exert a deplorable influence upon the profession. Lack of the economic independence which permits absolute candor and frankness in practice; lack of opportunity for con-

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tinued study and research, and inability to travel for the purpose of clinical observation must, I take it, prevent the physician subjected to them from attaining a maximum of efficiency. The members of the profession who achieve success are, almost invariably, free from such restraints.

One great reason for the terrible plethora of doctors is the fact that the qualifications for license to practice are almost universally too low. The educational requirements are too narrow and exclusive. I do not think that any considerable number of representative physicians will deny or question the statement that there are far too many half-educated medical practitioners. I believe that a physician ought to have an all-round education. He ought also to be an expert psychologist, for example. He ought to be a bacteriologist, an efficient sanitarian and something of a sociologist. There is no other profession which requires such a highly developed education.

Not only ought the standards for entrance into the profession to be raised, but they should be standardized and made uniform. The great differences in the various state laws should be done away with.

One great defect in the profession and its relation to the public is the comparative neglect of preventive medicine and the almost exclusive attention to curative medicine. Personally, I doubt whether this defect will be remedied so long as the medical profession is based upon individualism and competition as at present. I doubt whether preventive medicine can be fully developed until the profession is socialized and the doctor becomes a public official.

It has always seemed to me that the overproduction of doctors could and should be stopped; that the license to practice medicine or surgery should be granted only to those who undergo far greater training than is now required; that the licensed practitioner should be made a public official and paid a salary, and a pension on retiring after a prescribed length of service; that the salary should be adequate to enable the practitioner to keep up his studies and to travel; that each licensed doctor should be required to do a certain amount of research work

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each year, or to make some contribution to the knowledge of the profession which would be accepted as the equivalent of the research work prescribed.

These suggestions are put forward tentatively and with all due humility. After all, while the criticisms of the medical profession by laymen have often been extremely dogmatic, the useful criticism must, I believe, come from within the profession. In responding to the editor's friendly invitation to join in this symposium, I do so with considerable reserve.

NATHAN STRAUS, who was president of the New York Board of Health, originated the distribution of pasteurized milk, thus saving the lives of numberless thousands of infants. His name is conspicuously associated with other philanthropies in the realm of hygiene. Mr. Straus thinks that the world should honor the heroes who battle against disease:

It does seem to me that it is unfortunate that attack is so much more common than praise. This is particularly regrettable when the shafts of criticism are aimed at a profession whose members day after day lay all humanity under obligations to them at the risk of their own lives. All the honors that are given so spontaneously to the heroes of the battlefield ought to be accorded without stint to the brave medical men who fight without ceasing against the greatest foe of humanity, disease. I have always, throughout my twenty-four years' struggle against preventable diseases, sought to give full credit to what physicians have done to make possible the present world-wide war against disease, for I have considered it a public duty to sustain them in this fight.

It appears to me that the medical profession is now entering upon the greatest phase of its history in the development of the science of preventing the plagues that afflict humanity, and it is certain that in the pursuit of this blessed work physicians will win such overwhelming popular approval as to still the voice of the scoffer.

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WILLIAM SULZER, speaker and minority leader of the New York Assembly, and member of Congress, was elected Governor of New York; after being impeached and removed from the governorship, enough people had confidence in him to elect him again to the New York Assembly, on the Progressive Ticket. Mr. Sulzer says that a sick man does not sneer at the doctor:

I am glad to state that I have now, and always have had, a clear and high opinion of the average members of the medical profession. In health we may laugh at them, but in illness we cry for them. They have done, and are doing, and will continue to do a great work for suffering humanity. They are entitled to the approval and commendation of every right thinking individual.

The medical profession, take it all in all, keeps pace with the progress of the times, and every now and then some brilliant member of the profession makes an epochal discovery which is far more beneficial to the people than the constructive work of able legislators, or the ribald sneers, and adverse criticism of the wits and the writers of the day.

BOOTH TARKINGTON is one of the men who has made Indiana famous in literature. He is the son of a gentleman who has Hon. before his name, and he himself is author, playwright and amateur politician, but an alien profession lies nearest his heart.

Yes, I believe with Stevenson. Doctors are the best things civilization has made. Taking them all in all, I believe that they are the world's best men—best in wisdom and best in heart.

NIKOLA TESLA invented the telephone-repeater and conceived the idea of his rotating magnetic field in Hungary, but his subsequent electrical inventions, such as the Tesla coil, the transmission of energy through a single wire without return, and system of transmission of power without wires, were made in America. The suburb of Ravenswood may be electrified to hear that the illustrious Tesla is an alkaloidist:

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The triumphs Medicine has achieved through the use of alkaloids, serums and specifics are such as to command the admiration of the whole world. It is a science in the true sense, though, perhaps, now and forever, one of probabilities, owing to the nature of the problems presented.

EDITH M. THOMAS, one of the most important of our contemporary poets, has written these books of verse—A New Year's Masque, Lyrics and Sonnets, The Guest at the Gate, Cassia and Other Verse. Miss Thomas thinks there is nothing the matter with physicians, but that much is the matter with patients:

I have only one suggestion to make as to "increasing" the "proficiency" of the medical profession, viz., an increase in the good sense and appreciation of those requiring the services of the profession. The attitude of the average patient toward the attending physician does not, in so many cases, seem cognizant of any duty toward the latter. At the best, the most of us are but "bad patients," often perverse in following directions, in nowise co-operative, as would be necessary in any other relationship where two parties are concerned. Often enough we are not long grateful even when our lives have been virtually given back to us. It is to be feared that none gets such a view of the "seamy side" of our common humanity as does he who ministers to its ills; and that he does not thereby become a full-fledged cynic may be held to be due to the ethical standards and discipline maintained by the profession. Surely, Stevenson spoke as truly as he did heartily in declaring the doctor to be the flower of our civilization. He is the great soldier of Peace, fighting to save life, while the legionaries in arms are engaged in taking it.

ROSE HARTWICK THORPE is a poetess whose fame is secure, because it rests upon a single poem—Curfew Must Not Ring Tonight. She has written several books of verse which have been collected into a volume entitled Poetical Works of

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Rose Hartwick Thorpe. She has no faith in drugs, because she believes she graduated from invalidism only after she discarded them:

Sympathetic association with sorrow and suffering must necessarily develop noble characteristics, and physicians, as a class, represent a high order of manhood and womanhood, but I question the efficacy of drugs in the treatment of disease. My conclusions are the result of forty years of invalidism under the care of various doctors, and twenty-five years of health dating from the time their services were discontinued. I believe that drugs are more often detrimental than helpful; that physical disorder, being largely the result of mental conditions, requires a knowledge of individual idiosyncrasies quite as much, in many cases more, than a knowledge of medicine. The most efficient physician is able to inspire absolute confidence and allay fear which not only engenders disease but retards recovery. In his successful accomplishment of this is his greatest service to humanity.

CHARLES F. THWING, the author of various books dealing with education, college life and religion, is president of Western Reserve University and Adelbert College, and secretary of the Carnegie Foundation for the Advancement of Teaching. He thinks that the profession is already proficient:

I believe that the medical profession was never more efficient than it is today; and it has always been distinguished for its efficiency.

DAVID TODD, who designed and erected new observatories at Smith College and at Amherst, was professor of astronomy and higher mathematics at Smith, and is now professor of astronomy and navigation at Amherst. He was the astronomer-in-charge of the American scientific expeditions to Japan, West Africa, Tripoli, Barbary, Dutch East Indies and Russia. He was chief of the United States Naval Observatory eclipse parties in Texas, and chief of the Mars expedition to the Andes. This

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eminent astronomer thinks that the medical schools need a shaking up which will out-flexnerize Flexner's Report:

I have an idea that the trouble lies rather more with the schools of medicine than with their graduates. Thorough and progressive revision of the methods of the schools and their teaching ought to do much toward making things better.

Also some practical way ought to be devised by which the average practitioner could get more leisure for additional study; to become fully acquainted with the results of the latest medical research and to post himself in the application of new methods to the ever-changing exigencies of his own practice. I have known few physicians who would not have availed themselves worthily and helpfully, had such opportunities offered.

THEODORE N. VAIL, studied medicine for a while, but not long enough to introduce any remedial agents into our materia medica; instead, he introduced the American system of street railways in Buenos Aires, and became president of the American Telegraph and Telephone Company. Mr. Vail thinks that the intelligent portion of the community puts a proper valuation on the doctor's work:

While it may be the custom to make light remarks and superficial reflections upon the medical profession, yet at the same time those who do so in the last resort come to the members, and I can but think that there is a full appreciation on the part of all people of intelligence or common sense, not only of what the medical profession are doing, but what they are striving to do. As in every other profession, and in every business, there are those who do not live up to the standards, but that is no reflection upon the whole body.

EUGENE WALTER knows how it feels to write the most successful play of the day, for he wrote The Easiest Way. Mr. Walter thinks that the best cure for medical satire is a belly-ache:

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I am now writing a play that is pertinent to your inquiry. No doubt it will soon see the light of day, either for endorsement or immediate assassination, and should you care to attend the performance at that time, you can then find my answer.

There are doctors and doctors, and as the itinerant cow-puncher and desert rat once said, many of them are g— d— doctors, but in the case of a belly-ache, ridicule and doubts immediately disappear and a long, lingering steadfast yearning takes its place.

JOHN WANAMAKER, who was Postmaster-general of the United States in the cabinet of President Harrison, has erected churches and Y. M. C. A. buildings in India, China, Japan and Korea, and in other ways has been conspicuously identified with religious activities. His department stores in Philadelphia and New York have made his name a household word with the housewives of those cities. Mr. Wanamaker tips his Stetson to the profession:

In a long life I have learned to take my hat off to the physicians and surgeons that have come under my notice. Every man has some defects no matter what his profession is, but I think the Medical Profession has less of them than any other.

BOOKER T. WASHINGTON climbed from slavery to the top of fame's pinnacle. His work as principal of the Tuskegee Institute of Alabama, placed him among the great educators of modern times. Like Mr. Comstock, Mr. Washington has passed away since his contribution was received. It is evident that his opinion of the medical profession was higher than that entertained by the two other distinguished colored men who have contributed to this symposium—Professors DuBois and Kelly Miller:

The old theory of healing was that of curing diseases by means of medicines after the diseases had appeared. The new theory is that diseases should be prevented by correct living and obedience to the laws of health. The one was curative,

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the other is preventive. In both systems the physician is the central point for, if I may quote the famous Dr. William Osler, "the basis of the entire profession of medicine is faith in the doctor and his drugs and his medicines," and that is true whether we have in mind the physicians who depend upon drugs for cures; those who manipulate the body for healing; those who teach that one mind acting upon another can banish disease; or those who rely upon the operative of the Divine Mind to heal the bodies of men.

Sustained by this faith and the obedience which it has created, countless millions have been cured of diseases and relieved of pain from the most ancient of days; and so in the light of all this, I regard the physician as one of the most useful friends of mankind—a friend without whom the past would have been a house of continuous human pain and suffering, the present would be a record of complete physical decay and death, and the future would be without hope to those who simply will not learn nature's laws of health and healing.

ANDREW D. WHITE, first president of Cornell University, Ambassador to Germany and Russia, and author of the History of the Warfare of Science with Theology in Christendom, is equally renowned as educator, diplomatist, historian. He thinks that the discoveries of modern medical science are sufficient to quench all adverse criticism:

I have always had a special admiration for the Medical Profession, and this feeling of mine is steadily increasing, as I view its astonishing triumphs in recent years.

WILLIAM ALLEN WHITE, the Emporia Gazette's brilliant editor, who acquired a national reputation by asking, "What's the matter with Kansas," is kind enough to think that there is nothing especially the matter with doctors:

I do not think there is anything seriously wrong with the medical profession. It seems to me that man for man, the doctors of my acquaintance stand higher professionally and

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personally than the members of any other profession. They come nearer realizing the ideal of service for the joy of service, upon which our civilization must ultimately rest, than do the members of any other profession.

ISRAEL ZANGWILL, who became one of the foremost literary men of England when he wrote The Children of the Ghetto, sends us a question with which we may fittingly conclude this symposium:

There is much more wrong with the writing profession than with the medical, so why invite recriminations?

So here ends the SYMPOSIUM ON THE MEDICAL PROFESSION, *in which sixty-six well-known voices, commingling in praise and blame, have told us, in our own lair, what they think of us.*

Without hauteur or the braggart's tongue, not with an assumption of superiority over others, but as students seeking the truth, and as men sobered by the part we play in the drama of life-and-death, conscious of our limitations, rejoicing in what we have achieved throughout the ages, grateful for the many discoveries of modern times, with a vision of what is yet to be, let us press forward to the work that lies before us in the long road to our dream of the diseaseless future!

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The Oath of Hippocrates

I swear by Apollo the physician, and Aesculapius, and Hygeia, and Panacea, and all the gods and goddesses, that, according to my ability and judgment, I will keep this Oath and this stipulation—to reckon him who taught me this Art equally dear to me as my parents, to share my substance with him, and relieve his necessities if required; to look upon his offspring in the same footing as my own brothers, and to teach them this art, if they shall wish to learn it, without fee or stipulation; and that by precept, lecture, and every other mode of instruction.

I will impart a knowledge of the Art to my own sons, and those of my teachers, and to disciples bound by a stipulation and oath according to the law of medicine, but to none others. I will follow that system of regimen which, according to my ability and judgment, I consider for the benefit of my patients, and abstain from whatever is deleterious and mischievous.

I will give no deadly medicine to any one if asked, nor suggest any such counsel; and in like manner I will not give to a woman a pessary to produce abortion.

With purity and with holiness I will pass my life and practice my Art. I will not cut persons laboring under the stone, but will leave this to be done by men who are practitioners of this work. Into whatever houses I enter, I will go into them for the benefit of the sick, and will abstain from every voluntary act of mischief and corruption; and, further, from the seduction of females or males, of freemen and slaves. Whatever, in connection with my professional practice or not, in connection with it, I see or hear, in the life of men, which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret. While I continue to keep this Oath unviolated, may it be granted to me to enjoy life and the practice of the art, respected by all men, in all times! But should I trespass and violate this Oath, may the reverse be my lot!

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MEDICAL Review of Reviews

AUSTIN FLINT, M.D., LL.D.

One of the Most Eminent of American Physicians, Who in 1845 Established the Buffalo Medical Journal, Which Seventy-Four Years Later (1918), Was Combined with the Medical Review of Reviews.

Foundation of Journal: The Medical Review of Reviews was founded in 1895 by Daniel Lewis, M.D., M.A., Ph.D., LL.D., Professor of Surgery, New York Postgraduate Medical School and Hospital; Commissioner of Health, State of New York (1892-1904); President, New York County Medical Society (1884-86) and Medical Society of the State of New York (1889); Vice-President, New York Academy of Medicine (1896). The Medical Review of Reviews was the first medical journal in America to devote itself to abstracts and to publish a monthly Index Medicus. These features became unnecessary and were eliminated when numerous periodicals added abstract departments and the American Medical Association began the publication of the comprehensive Quarterly Cumulative Index Medicus. The Medical Review of Reviews is now devoted to original contributions on general medicine and public health.

Amalgamation of Journals: During its career, the Medical Review of Reviews has absorbed these five journals: Southern Medicine, Therapeutic Medicine, Journal of Pediatrics (founded 1895 by Dr. Dillon Brown), Buffalo Medical Journal (founded 1845 by Dr. Austin Flint), and Archives of Therapeutics.

Medical Sociology: The Medical Review of Reviews, one of the first journals to recognize the relationship of medicine to social problems, produced Eugene Brieux's Damaged Goods, Frank Wedekind's The Awakening of Spring, Gerhart Hauptmann's The Weavers, and various other social dramas. This phase of the journal's activity was under the direction of its publisher and managing editor, Frederic Hugo Robinson (1890-1923).

Contributors: Among the many distinguished physicians of the past who have contributed to the Medical Review of Reviews, we wish to place on record: Abraham Jacobi (1830-1919), Daniel Bennett St. John Roosa (1838-1908), George Ryerson Fowler (1848-1906); Roswell Park (1852-1914), Byron Robinson (1854-1910), John Veitch Shoemaker (1858-1910), Heinrich Stern (1868-1918), and the late Sir James Mackenzie.

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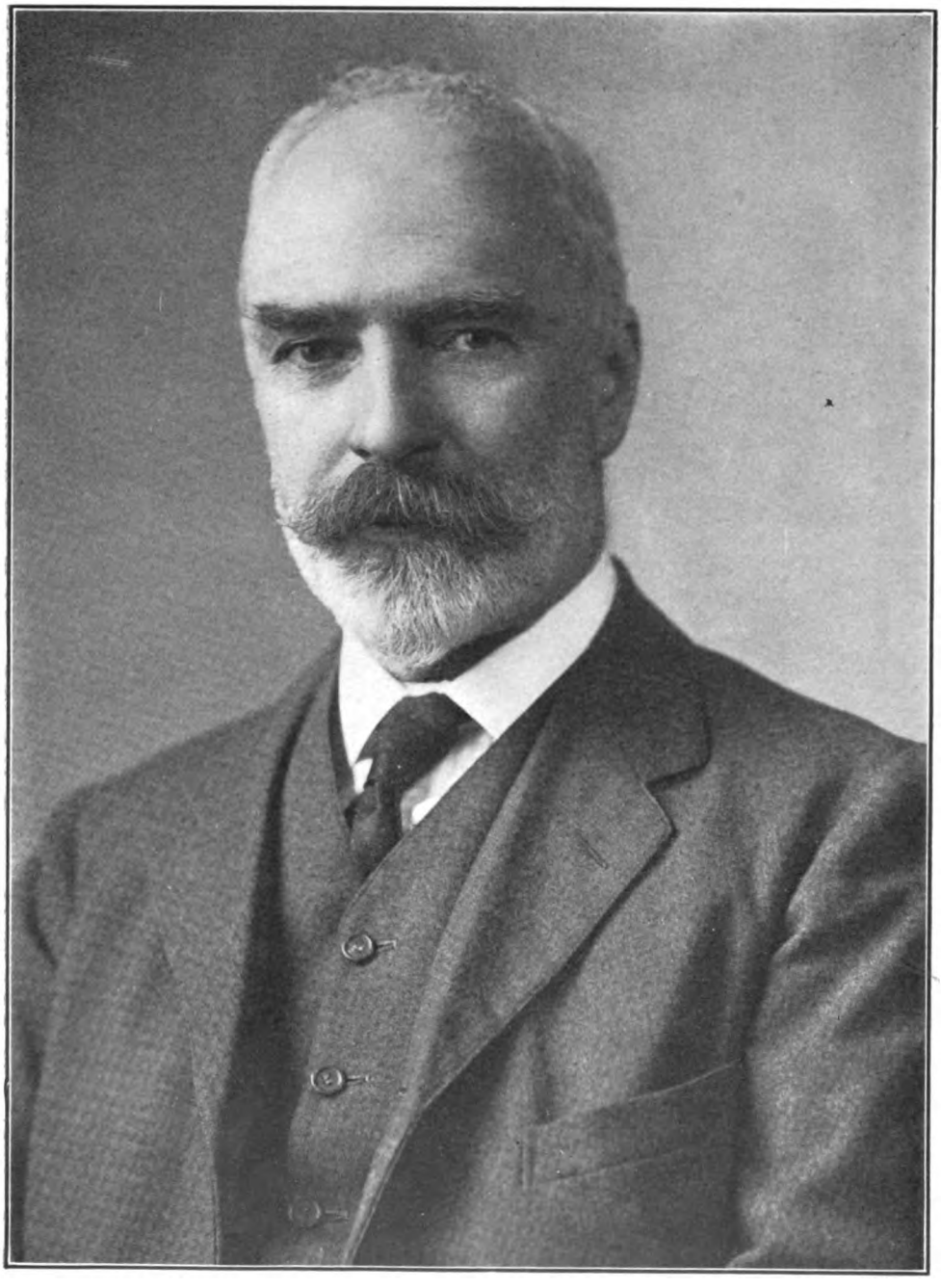

ARTHUR ROBERTSON CUSHNY [1866-1926]

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Diseases of the Blood and Lymph Glands

By MORRIS H. KAHN, A.M., M.D.

INTRODUCTION

The group of cases of diseases of the blood and lymph glands that we desire to present includes two of subacute lymphatic leukemia, two of acute lymphatic leukemia, two of acute glandular lymphaemia, two of pseudo-leukemia or Hodgkin's disease, one of polycythemia, and one of purpura hemorrhagica.

All of these cases showed significant blood studies and very typical and interesting clinical courses. In presenting these, we want to emphasize the clinical and hematological pictures in the various conditions. A few cases well studied serve better as teaching material in clinical medicine than a large number of cases seen briefly, or observed only superficially.

Diseases of the blood are often not so typical in their clinical recognition as to be classified very categorically. They may be divided into those in which blood destruction is accelerated, those in which the renewal of the blood is slow, those in which some toxic destructive agent is at work, and those in which there are miscellaneous and multiple factors which produce pathological changes. The cases we have selected are, however, quite typical.

LYMPHATIC LEUKEMIA

In lymphatic leukemia, the characteristic feature is a great increase of lymphocytes in the blood often associated with a similar accumulation and infiltration of these cells within the viscera leading to visceral enlargement. Hemorrhages occur

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with progressive anemia. The enlargement of the spleen is a striking feature in some cases, and the lymph glands also enlarge due to lymphocytic infiltration. As a result of the anemia, general parenchymatous changes take place. Death usually results from advancing cachexia and anemia, and often from heart failure with pulmonary edema.

This foreword introduces two cases of subacute lymphatic leukemia and two of acute leukemia which follow.

The following case is of unusual interest and was observed throughout its course; it was also studied post-mortem:

Yetta T., a school girl 14 years of age, gave a negative family history. She had had measles and frequent tonsillitis. For one year before the onset of the present illness, she complained of dyspnea on exertion. She had not yet begun to menstruate.

The present illness began 3½ months before her first examination, with an attack of grippe, upper respiratory catarrhal symptoms, and fever for ten days. After a few days, tonsillitis developed with pain in the precordial region and marked palpitation. There was slight fever and rapidly increasing pallor and loss of weight.

Physical examination showed marked anemia. There was present a small faded petetchia over the inner surface of the left arm, and a few small ecchymotic spots on the right arm and left leg. The posterior and anterior cervical glands were slightly enlarged bilaterally. The conjunctivae were pale as well as the gums; and there were a few petechiae on the left pillar, the right palate, and the uvula; and also one on the right tonsil. The heart was not enlarged, but presented a slight systolic thrill at the apex and a soft, systolic, blowing murmur transmitted to the axilla and heard all over the precordium. Accentuation of the pulmonic second sound was present. Otherwise the heart action was regular and of good force. There was marked throbbing of the vessels of the neck. The lungs were negative. The liver was not enlarged but the spleen edge was felt two fingers between the free border, smooth, and not tender. There was present a bilateral pseudo-clonus. The head, face, neck, larynx, thyroid, spine, nose, ears, and mastoids, and the extremities were otherwise negative.

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The blood count at that time showed Red Blood Cells 1,400,000. HGB (Sahli) 16%, color index 0.5. There was marked anisocytosis and poikilocytosis. No nucleated red blood cells were present. There were 4000 white blood cells, with a differential count of 11% polys, 84% lymphos, and 5% large monos. The blood culture was negative; and the Widal test was also negative. Coagulation time of the blood was 5½ minutes.

The stool showed no ova or parasites, but a strongly positive reaction for occult blood. The fundi oculi showed pale discs with blurred outline and tortuous vessels. There were present very many large hemorrhages scattered throughout the entire retina. From this a diagnosis was made of neuroretinitis with hemorrhages. During the following two weeks, the temperature was regularly remittant between 99° and 101°F, occasionally rising to 102°F. The blood picture progressively improved until, within a month, it was as follows:

Red Blood Cells	4,200,000 with only slight anisocytosis.
Hemoglobin	71%
White Blood Cells	5,700
Polys	23%
Lymphocytes	75%
Large Monos	2%

The patient was then discharged one month after admission to the hospital very much improved, and was advised to continue treatment by Blaud's pills and Fowler's solution which had apparently been so amazingly effective in the remission of her symptoms.

The urine showed a very faint trace of albumin, but no other changes.

Two weeks after discharge, the patient noticed a small gland behind the angle of the jaw on the right side. This gradually increased in size, was small, firm, moveable; but not tender nor painful. At that time, the liver was found enlarged two fingers below the free border.

The blood examination now showed the following:

Red Blood Cells	3,064,000
Hemoglobin	66%
White Blood Cells	15,300

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Polys	12%
Small lymphos	6%
Large lymphos	76%
Large monos	6%

The polynuclear cells were hardly granular and were entirely neutrophilic. There were found two cells in a state of apparent separation after mitotic division. Upon this finding the diagnosis was made of subacute leukemia, beginning with a sublymphemic blood picture.

She was then re-admitted to the hospital with anemia, soft systolic cardiac murmur, enlarged spleen and palpable liver, a large moveable gland at the angle of the jaw, and a few small ecchymoses on the leg.

The right eye showed an old hemorrhage in the fundus, near the disc. For several weeks her condition remained very little changed; but the blood showed an increase in lymphocytes to 93%. The lymphatic glands receded and the patient felt improved for a period of two months.

She then returned with marked anemia, considerable enlargement of the submaxillary and cervical lymphatic glands, loss of weight, and fever. The spleen was increased in size to the level of the umbilicus. There were petechiae on the buccal mucous membrane. The blood count then was

Red Blood Cells	2,190,000
Hemoglobin	38%
Color Index	0.75
White Blood Cells	25,200
Polys	1%
Lymphos	99%

The temperature ran between 100 and 102°F. An intramuscular injection of Salvarsan was given, 0.3 grams. A few days later the temperature rose to 104°, and continued so daily with intermissions. The hemoglobin fell progressively during the following two weeks when it reached 18%, and the red blood count fell to 1.200,000. The white blood count, however, remained unchanged. Transfusion was performed by the direct method and the following day, the hemoglobin rose to 50%.

Numerous petechiae appeared for a few days after the transfusion. The blood count during the next two weeks was approximately as follows:

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Red Blood Cells	3,000,000
Hemoglobin	50%
White Blood Cells	4,000
Polys	20%
Small lymphos	60%
Large lymphos	20%

The temperature continued irregular for the next month. The patient developed a crateriform ulcer on the anterior pillar of the fauces, containing spirillae and fusiform bacilli. The blood culture was negative.

She developed scattered papules over the skin of the extremities and body, which showed on biopsy perivascular lymphatic infiltration.

Six months after she first came under my observation, she was pale and weak with a large, diffuse mass in the left side of the neck which caused a degree of torticollis, her face turned toward the right. There was some exophthalmos. The conjunctivae were pale. The tonsils were enlarged unequally with large crypts. The skin showed subcutaneous lymphatic nodules over the extremities, with bluish discoloration. There were enlarged axillary, cervical, and inguinal glands, and small epitrochlears. The spleen had grown almost to the median line and to below the umbilicus. The blood count showed no polynuclear cells, and indicated a distinctly progressing lymphatic leukemia.

Two weeks later, the glands on the right side were also enlarged, although discrete; while on the left, they were matted together. The heart was enlarged, with Corrigan and capillary pulse and a Durosiez sound in the femoral artery. There was marked dyspnea and slight enlargement of the liver. The temperature ranged between 103° and 105°, and the pulse rose from 100 to 160 per minute. With the increasing pallor, the dyspnea increased and the respiratory rate rose to 42 per minute. Numerous new cutaneous infiltrations developed and the pallor became extreme. The blood count showed 100% lymphocytes.

Three weeks later, and seven months after the first examination, the patient developed cyanosis and delirium which resulted from the anaemia. The patient died.

Postmortem examination showed a large, congested spleen. The liver was very large and showed fatty infiltration. The

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kidneys were somewhat enlarged and pale. The bone marrow of the ribs and spine was white, fatty, and pale. Ophthalmoscopy was done fifteen minutes after the patient's death; both discs and retinae were of an extreme pallor, the whiteness being diffuse and gradually merging into a pink color at the retinal periphery. The veins were empty, possibly due to auricular dilatation; (this is hypothetical). The arteries were very thin, but were seen only in segments.

The record of Esther K., aged 40, a case of subacute lymphatic leukemia, is as follows:

Her family history was negative. She had had measles and malaria as a child. For six years she had had frequent attacks of pain in the left knee, without objective manifestations. She was married 20 years, had six children and no miscarriages. The menopause occurred at the age of 34.

Her present illness began four months before she first came under observation, with dull cramp-like pain in the left hypochondriac region, radiating about the abdomen. This was worse with constipation, or on moving about. There was a slight cough since the onset, increasing weakness, loss of weight, increased frequency of urination, constipation and dull pain in the left leg and left knee.

Physical examination showed upper respiratory catarrh and general adenopathy. There were enlarged, discrete, small bilateral anterior and posterior cervical and axillary glands. There were also lateral thoracic glands present, more palpable on the right side. The lungs showed dullness below the level of the fourth rib in the left axilla. This level fell lower in the seated posture, due to the descent of the enlarged spleen. The heart presented a systolic blow at the apex, accentuation of both basic sounds, and a palpable episternal pulsation. There was a diastolic murmur in the vessels of the neck. The spleen was enlarged and percussed below the fourth rib to the free border; the edge was felt, slightly tender, firm, rounded at the level of the umbilicus. It was visible on inspection of the abdomen, descending with inspiration. The surface was irregular, but there were no nodulations. The liver was enlarged from the fourth rib to the free border; it was felt three fingers below the free border. There was visible peristalsis around the

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umbilicus, just below the mass, not in any one direction. Constant borborygmi was heard by stethoscope over the abdomen. There was a nodule in the lower abdomen about the size of a bean, adherent to the skin but not deep; it felt lipoid and like a sebaceous cyst. Both tibiae were tender to percussion. Examination of the ocular fundi showed clear discs and normal retinal vessels.

The blood showed the following:

Red Blood Cells	3,264,000
White Blood Cells	20,000
Hemoglobin	72%
Polys	24%
Lymphos	70%
Large Monos	4%
Eosinophils	2%

The temperature was continuous in its course, varying between 102° and 103° F.

The spleen and liver persisted enlarged as before. There was present a progressively increasing swelling of the left leg from the knee down to the ankle, most marked on its external aspect with irregular thickening and brawny edema.

Biopsy of a right lateral thoracic gland and of a small hard subcutaneous nodule on the front of the right forearm showed marked resemblance to leukemic infiltration, but pseudo-leukemia with myelogenous infiltration with small cells could not be ruled out. The biopsy of the nodule of the right forearm showed perivascular infiltration with small lymphoid cells from which no diagnosis could be made.

The white blood cells increased to 60,000 and then to 82,000, and the hemoglobin fell to 62%.

The patient developed a large swelling just below the outer side of the left knee, about the size of a peach. It was tender, red, and fluctuating. Aspiration yielded pure yellowish- non-odorous pus. An incision eight inches long was made over the swelling, and about four or five ounces of necrosed tissue, pus and coagulum were removed.

New subcutaneous infiltrations over the trunk, chiefly over the chest and abdomen, developed. No hemorrhages occurred.

Subsequent smear of pus from aspiration of the knee showed

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degeneration of pus cells—apparently 75% polys and 25% lymphos. Cultures and smears were sterile. The wound on the leg showed no healing; sloughs separated. It appeared like a dissecting-room wound, exposed muscle and fascia.

Within three weeks, the patient showed rapid emaciation. The general condition was poor. There were numerous cutaneous and subcutaneous infiltrations which appeared over the body and extremities. There was an erythematous reaction over each nodule which, over some, subsided, after a few days.

The patient began to have severe diarrhoea of from 15 to 20 watery yellowish stools a day, most streaked with red blood. There was no profuse melena. For one or two days, peristalsis was much less, the abdomen relaxed and sunken.

The stool contained numerous lymphocytes and red blood cells and gave a positive chemical blood reaction.

Three weeks after she was first seen, the heart became weak and the patient pulseless. The patient died of cardiac exhaustion and pulmonary edema.

Additional laboratory studies that had been made were as follows:

Widal test negative.
Wassermann test negative.
Urine Examination
Albumin +
Glucose 0
Bence-Jones albumose—Negative
Bile 0
Microscopic—Moderate number of white blood cells.

Acute Leukemia

In the following group of two cases, the disease ran a much more rapid course. On this account, they are called cases of acute leukemia, though the term has only a relative significance. The disease is more rapid in its character in the early years of life. The symptoms are of the same nature as in the cases above described, but are exaggerated in degree and rapidity of the course. There is rapidly advancing pallor and weakness, fever, bleeding from the mucous membranes and subcutaneous extravasations. Enlargement of the lymph glands may be well marked. Death results from heart failure.

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The blood condition will be illustrated in the cases reported below.

The following case of acute lymphatic leukemia died despite treatment with radium applied to the spleen, as well as that given intravenously.

Mrs. Sophie F., 21 years old, had been married ten months. Her menstruation was regular. She had nose-bleeds, at times profuse, for nine years.

Her present illness began three months before she came under my observation, with enlargement of the posterior cervical glands and the inguinal glands which increased in number. There was loss of weight, pallor, poor appetite, weakness and dyspnea and palpitation on exertion. The glands became painful.

On physical examination, there were present large follicular tonsils and large bilateral posterior cervical, post-auricular, and inguinal glands. The spleen percussed from the level of the eighth rib to four fingers below the free border, and obliterated Traube's semilunar space. The blood showed moderate pallor with a total leukocyte count of over 100,000, 3% polynuclears and 97% lymphocytes. The leukocyte count increased within a few days to 640,000 cells per cu. mm., with 95% lymphocytes. The following radium treatments were then given:

First, 10,336 mc. hours from a pack to the spleen. One week later, an active deposit of radium was given intravenously, 134 mc. hours. Three weeks later, another active deposit was given intravenously of 225 mc. hour.

The patient, however, died a week later with extreme anemia.

Although the following case of acute leukemia occurred after the patient had had x-ray treatment for toxic adenoma of the thyroid, the causal relationship between the two will remain speculative.

The advent of radioactive substances into therapeutics has introduced a new etiologic factor in clinical pathology. It has been shown that radiations of short wave length may cause destructive lesions of the blood forming organs. A number of cases of grave anemia and pernicious anemia have occurred in persons who handle radium and thorium. The therapeutic use

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of these substances or of too strong or too often repeated doses of Roentgen ray has sometimes produced similar conditions. Leukemia may follow the use of radio active substances.

Mrs. Millie C., 40 years old, had occasional tonsillitis and a number of attacks of acute rheumatic fever before she came under my observation. For five years, she had slight thyroid enlargement associated with some toxic symptoms of nervousness, palpitation, tachycardia, dyspnea, and loss of weight. Her present illness was first discovered three weeks before examination, immediately after seven months of treatment by means of x-ray to her thyroid gland.

There were large purpuric spots over the arms, trunk and legs, and petechial spots on the soft palate as well as numerous petechiae and capillary hemorrhages over various regions of the body. There was some evidence of hyperthyroidism in the rapid heart rate, 160 per minute, and the enlarged thyroid. The urine showed an abundance of albumin and many red blood cells. The blood examination was as follows:

Red Blood Cells	3,100,000
Hemoglobin	40%
White Blood Cells	9,000
Polys	3%
Lymphos	2%
Myeloblasts	95%
Platelets	40,000
Bleeding Time	Over 20 minutes
Clotting Time	3 minutes

Some of the lymphocytes showed mitotic changes.

The temperature was 101°F. and rose within a few days to 105°F.

The mouth and gums began to bleed and there was profuse metrorrhagia. The spleen was not enlarged. The Wassermann test was negative, and the heart showed a systolic apical murmur with accentuated pulmonic second sound.

The anemia progressed rapidly with otherwise little change in the blood count and the patient died within two weeks of observation. The diagnosis was acute leukopenic myelogenous leukemia.

The type of leukemia caused by roentgenologic irradiation

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is not peculiar in any way. It may be either of the lymphatic or myeloid type. In all previously reported cases, the effects were produced through small doses of x-ray, frequently repeated over a long period.

Acute Glandular Lymphemia

Acute glandular fever is a condition that has been recognized during the past two decades. The causes are unknown. It is possibly associated with the entry of infection from the throat or teeth, and is characterized by enlargement of the cervical and other lymph glands, and with a lymphocytic and leukopenic blood picture. The granular cells of the blood, those which arise from the bone marrow, become considerably diminished in number in the circulation. This has been termed aplastic anemia.

The two cases we describe both presented typical clinical features, ran a febrile course of about four to six weeks and recovered completely.

The following case illustrates the marked symptoms that may be produced by acute glandular lymphaemia, with remarkable recovery, that cannot definitely be attributed to any particular mode of treatment.

Max H., aged 27, had had repeated attacks of pleurisy. Since childhood, he suffered from nasal obstruction and adenoids, with consequent dyspnea and palpitation. Four years before the onset of the present condition, he had scarlet fever and acute nephritis.

The glandular condition which he now suffered began rather rapidly with pain in the left side of the neck, moderate glandular enlargement, and headache. He became worse during the next two days, with increased glandular swelling of the left anterior and posterior cervical chains and submaxillary glands. The physical examination showed the following: Pupils were equal, and there was marked nasal obstruction. The glands in the neck were enlarged from the size of a pea to that of a large bean. There were also palpable bilateral axillary and small epitrochlear glands. The heart revealed no murmurs nor enlargement, with a rate of 100 per minute. There was a loud systolic blow over both infra-clavicular regions, due to

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compression of both subclavian arteries by some deformity of the chest. The lungs showed pleuritic rales over the entire right side, posteriorly; and also over the left base. In the right interscapular region, there was dullness and diminished breathing due to the old-standing thickening of the right pleura. There was some pleuritic pain in the right chest. The spleen was not enlarged, but the liver edge was felt two fingers below the free border, and rounded. The abdomen was otherwise negative.

The blood examination at that time showed marked leucopenia—5000 white blood cells per cu. mm.; polys 38%, lymphos 46%; and large monos 16%. The temperature during the subsequent three weeks of observation ranged between 101.4° and 103°. The differential blood count progressively diminished until the leukopenia was 3,000 and the polys only 20%.

Toward the end of the period of observation, we discovered the extent of pediculosis capitis which had previously been noted, but was dismissed as insignificant. It was decided, however, to treat this radically because of the presence of some scratches in the scalp. Accordingly, glacial acetic acid was applied after the hair was cut. Within a few days, improvement in the blood picture became evident.

The patient recovered with progressive improvement and no further medication.

In this case, there had always been a tendency to lymphaemia as shown by the relatively high lymphocyte count under natural conditions. The incidence of lymphaemia as above described indicates the importance of slight infection as a provoking or immediate cause preciptating acute glandular fever.

The record of Nat G., aged 24, a case of acute glandular lymphaemia, is as follows:

Family History—Negative.

Past History—Negative. Denied venereal infection.

Present Illness—Began three weeks before he first came under observation. He complained of slight sore throat and enlargement of the glands of the neck, submaxillary glands, and posterior cervical glands. A few days later, he had fever for several days, rising once to 103°F.; it gradually fell to normal within a few days. He had headache, malaise and general pains in muscles and back at the

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onset of his illness. There was no vomiting, and no cardiorespiratory or gastro-intestinal symptoms. He was given food frugally and lost about 15 lbs. The glands in the axilla and groin were also enlarged, but all the glands were gradually diminishing in size.

Physical Examination

General Condition—Well-nourished; good color.
Eyes—Negative. No petechiae.
Mouth—Teeth in good condition. Left tonsil slightly enlarged.
Nose, Ears, Larynx, Head, Spine and Skin—Negative.
Glands—Few small right and left posterior cervical, and bilateral axillary and inguinal glands palpable. Bilateral epitrochlear glands felt. No lateral thoracic glands.
All of the glands were of elastic consistency, rather firm, not tender.
Chest—Normal. No tenderness on percussion of sternum. Lungs negative.
Heart—No murmurs. Pulses good.
Abdomen—Soft, relaxed, tympanitic. Kidneys not felt. Liver fifth rib to free border; edge not felt. Spleen percussed somewhat large; edge firm, elastic, felt two fingers below free border; surface smooth; not tender.
Temperature—98-99°F. thrroughout.
Pulse—72-92.
Respirations—20-24.

Laboratory Studies

Urine—Clear, acid.
Specific Gravity—1018-1024.
Albumin—0
Glucose—0
Urea—1.2%
Microscopic—Negative
Von Pirquet Test—Negative
Wassermann—Negative

Blood Studies

9/4—HGB (Sahli) 82%
Red Blood Cells—3,640,000
White Blood Cells—10,000
Polys 25%
Lymphos 67%
Large Monos 7%
Basophils 1%
Following a course of deep injections of sodium cacodylate, grain 1 daily, and the administration of 5 minims of benzol t.i.d., there were only slight variations in the general blood

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count. There were 11,400 white blood cells and 32% polys; lymphocytes, 52%. The eosinophils, however, rose to 14%. Intravenous injection of 0.6 grams Neosalvarsan was then given. During the subsequent stay in the country, the general condition became greatly improved. He gained eight pounds. There were no glandular enlargements, no fever, and the spleen was not felt.

Blood examination then showed

Polys 68%

Lymphos 24%

Large Monos and Transitionals 7%

Eosinophils 1%

The patient was then discharged and has remained well ever since.

Hodgkin's Disease

Although clinically, this disease runs a typical course, the cause of it is still unknown. It is possibly a glandular reaction to the invasion of some infection. It is characterized by progressive enlargement of the lymphatic nodes of the body, beginning usually with those of the cervical chain. Other organs become involved, the liver and spleen may become enlarged and the visceral lymph glands usually encroach to a serious extent on the visceral structures. Anemia and cachexia supervene, or the patient dies from asphyxiation as in neoplastic involvement of the lungs and compression of the upper air passages.

The following two cases of Hodgkin's disease or pseudoleukemia present very characteristic features.

Zella R., age 21, came under observation three months after she first noticed posterior cervical glandular enlargement and sticking pain in the region of the left axilla. For several years she had had a chronic nasal discharge, but otherwise gave a negative history. The nodules increased in size and spread to the right side of the neck. She then complained of difficulty in swallowing and some loss of weight.

The main finding on physical examination was glands in the neck, more on the left side, with palpable left axillary and bilateral inguinal nodes. The blood examination showed

Red Blood Cells	4,000,000
Hemoglobin	70%

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White Blood Cells	22,000
Polynuclears	82%
Lymphocytes	13%
Eosinophils	5%

The Wassermann test was negative, the urine was repeatedly negative, and the temperature ran between 98° and 101°F., over a period of three months' observation.

The glands slowly and progressively enlarged, producing compression of the trachea and a dry brassy cough. For a time, treatment was given by means of vaccine using the Bunting Yates bacillus. This proved ineffective and x-ray treatment was energetically begun and given every other day.

X-ray examination of the chest showed in the right upper lung a dense uniform infiltration which extended apparently from the mediastinum upward toward the right apex. The Roentgen appearance was strongly suggestive of a mediastinal neoplasm growing into the lung, but the clinical features were convincingly those of Hodgkin's disease.

There then developed severe, constant cough and dyspnea and pain in the chest and upper abdomen. One year after the patient first came under observation, she showed large bilateral cervical glands producing the typical "cou cardinal," right large pectoral glands, and bilateral axillary glands. The lungs showed dullness and diminished breathing in the right upper chest.

There was a patch of bronchial voice and whisper at the angle of the left scapula. The surface of the chest showed distended superficial veins, extending over the arms. The condition progressed with particular spread of the glandular enlargement of the chest and the patient died in asphyxia, due to glandular invasion of the lung and compression of the bronchi.

Fanny W., aged 25, gave a negative family history. Eight months before she came under observation, she noticed a nodule the size of a marble above the left clavicle. Other glands appeared higher up on the left side of the neck. She then developed a short, barking cough and slight expectoration, and some loss of weight. She also noticed enlargement of the thyroid gland and exophthalmos.

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During the following year of observation, she had increasing pallor and loss of weight. Glands developed in the neck, axillae, and groins which were growing larger. The spleen enlarged producing abdominal distension. Physical examination showed pallor, petechiae in the conjunctivae, and tenderness over the clavicles and sternum. There were enlarged cervical and pectoral glands and also bilateral axillary and inguinal glands. The lungs showed diminished breathing in the left upper lobe.

During the examination, on her visit to my office, the patient suddenly developed an attack of typical bronchial asthma which lasted only five minutes. The lungs that had previously shown no rales, were suddenly diffused with sibilant rales on both sides and a spasmodic cough. When this subsided, the chest signs were again negative. There was a faint systolic apical heart murmur. The liver was not enlarged, though the spleen was felt down to the left groin and its edge crossed the middle of the abdomen. Its upper border was at the eighth intercostal space.

The blood examination was as follows:

Red Blood Cells	2,400,000
Hemoglobin	60%
Color Index	1.2
White Blood Cells	52,000
Polys	74%
Lymphos	19%
Large Monos	1%
Basophils	1%
Myelocytes	5%

There was marked anisocytosis, poikilocytosis, and polychromatophilia of the red blood cells.

Experimentally, the patient received intravenous injections of Neosalvarsan. She also received x-ray treatment. Both of these were ineffective. The glands enlarged considerably, both externally and in the chest. The heart was displaced upward by the enlarged spleen which occupied the entire left half of the abdomen. The general condition became worse, edema developed. The patient died with progressive asphyxiation.

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POLYCYTHEMIA

Polycythemia rubra vera consists of an increase in the total number of red blood corpsucles in the body, with an associated increase in the hemoglobin. In the typical clinical case, no exciting cause has been found. The condition is usually associated with a marked enlargement of the spleen, a florid complexion often presenting a degree of cyanosis, and usually an increased viscosity of the blood and an increase in its total volume. The symptoms are sufficiently characteristic in the following case not to require their mention in this introductory paragraph.

Pia S., aged 60, had four children and gave otherwise a negative family history. Ten years before she came under observation, she had an attack of catarrhal jaundice during her climacteric. She had had malaria as a child, but without any recurrences. When she was 52 years old, she complained of chilliness, malaise, and gradually discovered a tumor in the left hypochondriac region which was at first the size of a goose-egg. She had aching pains in the small of the back and epigastric oppression, and noticed also a progressive cyanosis of the lips and face. During two years, the abdominal mass enlarged, gradually distending the abdomen. She lost appetite and some weight and was usually costive. For some months before she came under my observation, when she was sixty years old, she had had palpitation on exertion and attacks of weakness during which she felt she would die. These attacks were not typically anginal in character and were associated with an epigastric and umbilical tearing pain. Moving about in bed, particularly turning to the right, gave her the sensation of a weight falling toward the right in the abdomen.

Physical examination at that time showed slight emaciation, and cyanosis of the lips and mucous membranes. The heart was placed horizontally, the apex in the fifth space—two cm. in front of the anterior axillary line. There was a faint systolic murmur in the aortic area. The auricular impulse was visible in the veins of the neck. The lungs were negative. The liver was enlarged from the level of the fourth space down to three fingers below the free border of the ribs. Its edge

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was rounded, smooth, but not tender. The spleen was greatly enlarged as indicated in the diagram.

Its border of dullness in the recumbent position was at the seventh rib in the mid-axillary line. Its edge extended to the midline of the abdomen with the hilus near the navel, and its lower border at the level of the anterior superior spine of the ilium. It was hard, with a slightly granular surface, but painless on pressure. The kidneys were not palpable. There were small axillary and inguinal glands, but no epitrochlear or abdominal glands were palpable.

The urine showed a faint trace of albumin. Wassermann test was negative, and the blood examination was as follows:

Red Blood Cells	8,176,000
Hemoglobin	94%
White Blood Cells	20,600
Polys	82%
Lymphocytes	10%
Eosinophils	6%
Large Monos	2%

There were three nucleated red blood cells seen showing nuclear chromatin in a network.

The stool showed no ova or parasites, and was negative for blood.

Inflation of the colon with air showed the sigmoid flexure located in the hypogastric region. The transverse colon was pushed downwards. For one year, during which the patient was under careful observation, there was comparatively little change in the patient's condition or in the blood picture, except for the development of occasional metrorrhagia and the growth of warty papules over the cyanosed chin. These gave the appearance of lymphoid infiltrations. A few scattered telangiectases developed. The blood pressure was 145/80. The uterus showed no abnormalities, except its atrophic involutional condition.

A number of experimental measures were undertaken therapeutically and quite empirically. An intravenous injection was given of 15 c.c. of normal saline solution containing 3% of anhydrous calcium chloride, i.e., 8 grains of the latter. Aside from the general immediate effect, no change in the condition

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was observed. A week later, a subcutaneous injection was given of an emulsion of dessicated spleen in albolene specially prepared at my request by Armour & Co. Two grains of spleen were injected in the right arm. Following the injection, a large abscess developed at the site, which was drained and treated.

The pus from this abscess showed destroyed polynuclear cells and a few intact eosinophils in the following proportions:

Polys	86%
Eosinophils	12%
Large Monos	1%
Basophils	1%

The patient then developed attacks of urticaria and angioneurotic edema associated with epigastric distress and an ulcer on the mucous membrane of the mouth, all of which soon subsided. Melena occurred with red fluid stool and abdominal cramps which also soon abated. A mass additional to that of the spleen then became palpable in the region of the splenic flexure of the colon. The patient progressed into a state of cachexia, although her red blood count remained high. She gradually grew weaker and finally died in a hospital, apparently from the effect of this rather than from the polycythemia which she had had for years.

Purpura Hemorrhagia

In this disease, not only subcutaneous hemorrhages occur but often severe hemorrhages take place from the mucous membranes. Irregular fever usually occurs and fatal cases may run a short course. The following case, however, was under our observation during a period of three years in which the condition presented remissions and aggravations which finally terminated fatally.

Mary L., a woman of 43, had eight children and no miscarriages. During her menopause, at the age of 40, she began to complain of dyspnea and precordial oppression, and developed edema of the feet, puffiness of the eyelids, pallor, weakness, and loss of weight.

Physical examination showed a pasty complexion, puffy eyelids with a subicteric hue of the pale conjunctivae and

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sclerae. There was present chemosis, oozing from the gums, hemorrhages under the buccal mucosa, and a cardiac mitral murmur. There was slight emphysema and pulsation of the veins of the neck. On the neck there were scattered a few petechiae. Blood examinations over a period of two months of observation showed a progressive improvement. When first examined, it was as follows:

Red Blood Cells	2,290,000
Hemoglobin	21%
White Blood Cells	13,200
Polys	66%
Lymphos	20%
Large Monos	11%
Basophils	3%

There was marked anisocytosis, poikilocytosis, and polychromatophilia. There were many microcytes and megalocytes. The hemoglobin progressively increased under iron and arsenic medication until, within two months, it rose to 97%. The color index increased correspondingly from 0.5 to 1+; and the red blood count rose to 4,480,000. The leucocytes were reduced to 7,000 per cu. mm. with relatively little change in the differential count.

The blood pressure was 150/90. The Wassermann test was negative as well as urine examination, and stool examination.

The patient gained in weight. Fundus examination was also negative. At times, the patient ran a slight temperature of 100 to 101°F.

She then developed indurated ecchymotic spots on the abdomen and in the groin, and a profuse petechial rash over the chest and back, and bleeding from the nose. A sudden attack occurred of cardiac collapse with weak, rapid, and running pulse of 160 per minute and marked palpitation.

This subsided under morphine. During the attack, the systolic murmur disappeared, but returned 24 hours later when the attack subsided. From the history of similar attacks previously, a diagnosis of paroxysmal tachycardia was made.

Physical re-examination at that time showed tenderness over the tibial bones and the sternum on percussion. There were numerous petechiae over the shoulders, arms, chest, ab-

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domen and thighs, and ecchymotic spots on the back of the chest and bleeding gums. The heart was considerably enlarged, its left border two fingers' breadth in front of the anterior axillary line. There was a systolic blowing murmur at the apex and over the body of the heart, transmitted slightly to the left axilla and toward the aortic area. The basic sounds were normal. The lungs were clear. The liver was considerably enlarged, from the level of the fifth rib to four fingers below the costal margin. Its edge was smooth and sharp, not tender and its surface was smooth. The spleen was not enlarged.

The continued bleeding from the gums prompted the injection of diphtheria antitoxin as a means of introducing horse serum subcutaneously. This was repeated in increasing dosage every two days. The bleeding from the gums subsided. A week later, the patient developed serum sickness with a universal urticarial rash, fever, and pain in the joints, particularly in the legs. Ascites also developed with edema of the lower abdominal wall and scattered subscrepitant rales in the chest.

The patient continued in an unchanged condition after the serum sickness subsided, for a period of six months. The blood showed variations from marked anemia and leukopenia to a relatively normal count. The pallor, however, persisted with dyspnea and palpitation. During the following two years, the patient sojourned in various hospitals with remitting and aggravating symptoms. She then developel almost continuous metrorrhagia and as a result required repeated transfusions of blood. Ecchymoses, epistaxis, and the uterine bleeding, however, recurred. Petechiae were present in the buccal mucous membrane. The heart showed increasing valuvular changes, with affection of both the mitral and aortic valves and cardiac failure set in. The patient then died in cardiac failure after three years of suffering. The diagnosis was chronic valvular disease, apparently not due to subacute infective endocarditis, purpura hemorrhagica, and secondary anemia.

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Calcium Metabolism and Therapy

By PAUL LUTTINGER, M.D.

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SUMMARY AND CONCLUSIONS

Fekete found that an injection of calcium every other day gave prompt relief in acute adnexol inflammations. This was corroborated by Vonkeimel.

Garofeano and Lavin, prefer the use of the lactate of calcium, in edema because of its reparative action on the renal parenchyma.

Filliol uses 4 to 5 Gm. daily of calcium iodide. He observed marked dehydration, diminished albuminuria and rapid resorption of fluid, especially marked in alcoholic cirrhosis. Krumenacher uses calcium as a diuretic in all serous effusions. Pasquale found the calcium salts to be excellent diuretics and indicated in edematous nephritis.

Reinhardt also reports favorable results in renal inflammations treated with calcium. Andrews, however believes that enormous doses are necessary to obtain definitely favorable results in nephritis.

Lymphatic Diathesis. Hoehl obtained excellent results in this condition (5 cases) with calcium-sodium lactate.

Nervous Disorders. Emmerich reported a case of *tic convulsif* as apparently cured by calcium therapy. Hoehl gave intensive calcium treatment to 92 cases of *neurasthenia,* 22 cases of *climacteric neuroses,* 10 *migraines,* 7 *tics,* 1 *paralysis agitans,* 3 *trigeminal neuralgias* and 10 cases of *epilepsy.* E.

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Mayer and Seitz have reported similar therapeutic successes in mild cases of *tetany* and in *eclampsia.* Rohde employs calcium salts as a synergist in his luminal treatment of epilepsy. Hess, as well as Epstein, recommend calcium salts in *tetany* due to rickets. Morenas and Sedallion add calcium salts to the antitetanic serum, in cases of ***tetanus.***

Gault's results demonstrate that calcium therapy may be of definite value in the milder functional neuroses. All 18 patients placed on prolonged calcium feeding (3-6 months) were uniformly improved.

Steger found that intramuscular and even subcutaneous injections of calcium gluconate always improved the condition of patients suffering from hysteria, manic-depressive phase of neurasthenia, organic neuroses of the heart and digestive system and from the nervous disorders attending the climacteric.

Ebinger obtained favorable results, from calcium, in *chorea,* epilepsy, neurasthenia, *hysteria,* tetany and paralysis agitans. Schwarzkopf reports the cure of *eclampsia,* in a mother and her infant, from the administration of calcium, 6 times daily, for 4 days. Snell, Lesser and Shepardson, Hjort and Eder and Noehren have affected cures in tetany due to removal of thyroid or parathyroid glands, when endocrine therapy alone had no effect. Stern obtained gratifying results in the neuroses of the *menopause* from calcium therapy. Pottenger advises the use of calcium in tuberculous pylorospasm and enterospasm. Miller and Hutton, very recently, reported a case of *parathyroid tetany* which did not yield to small doses of calcium and an calcium lactate, 180 grains lactose, and 50 units of a potent parathyroid preparation. Pasquale prescribes calcium salts in tetany, chorea and *otosclerosis.* Madsen claims that calcium therapy, combined with Collip's parathyroid extract, has a beneficial effect in *epilepsy;* dysregulators becoming ortho-regulators under this treatment.

Osteomalacia. Since the classic observation of McCrudden on the relationship between lime deficiency of the lactating mother and the development of osteomalacia, attempts have been made to cure osteomalacia by the administration of lime salts. Levy-Solal, Dalsace and Grillet recommend calcium therapy in this baffling disease. Fromme also reports good

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results. Day and Mendenhall have shown the importance of an extra supply of lime salts in the diet of nursing mothers as a prevention of osteomalacia. Novak and Porges refer to calcium salts as the recognized therapy of osteomalacia. Pasquale prescribes calcium as a routine treatment in all his cases of osteomalacia. Grassheim, who is an enthusiast of strontium therapy, states that calcium is superior to strontium in rickets and osteomalacia. Dubois combines calcium with adrenalin.

Ovarian Insufficiency. Crainicianu treated a series of cases of ovarian insufficiency with calcium lactate. He found that the lime corrected the vago-sympathetic unbalance which always accompanies this endocrine disturbance.

Pellagra. Goldberger states that calcium chloride, as well as lime water, are of some use in pellagra.

Poisoning. Mayer as well as Fabry recommend injections of calcium chloride to combat *cocaine* poisoning.

Lespinassi administers one gram of calcium sulphide for each grain of *bichloride* taken.

Rheumatism. Stern reports a case of *chronic* rheumatism which was benefited by the oral administration of calcium.

Skin Diseases. Bollag, Seiffert, Rissmann and Bettman report excellent results with calcium therapy in *various skin diseases.* Gehrman treated successfully *psoriasis, pruritus vulvae, acne vulgaris,* and *eczema* with calcium-sodium lactate. Bettman employs calcium therapy in *urticaria* (hives) *purpura, herpes* and *pruritus.* Holthaus published brilliant results, obtained in *chronic* eczema, by the oral administration of calcium. Luff reports 8 cases of *carbuncles* cured by the same remedy; also 7 cases of *urticaria* (non-dietetic), 3 cases of *bullous eruption, erythema, lichen planus, pruritus* (gouty), *pruritus ani* and *offensive perspiration* of hands and feet. remarkably improved by intensive calcium therapy. Boggs refers to the value of calcium lactate in scurvy, strawberry rash and pernicious anemia. Joseph, as well as Gehrman and Holthaus, employ calcium therapy as a routine treatment in all forms of *eczema.* Ferguson and Ferguson recommend calcium lactate (20 grains, several times a day) in the troublesome *pruritus* which accompanies jaundice.

Karrenberg has reported excellent results from calcium glu-

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conate in all acute exudative conditions, in dermatitis herpetiformis, lichen ruber, neurodermatitis and saltarsan dermatitis. Chronic conditions were not so easily influenced.

Bloom has recently reported excellent results from 5-10 cc. ten per cent calcium chloride injections daily (20 in all) in the treatment of *acne vulgaris*.

Rodecurt found calcium gluconate of great help in the *dermatoses* of pregnancy. Klare found this form of calcium particularly serviceable in the exudative diathesis of children, including benign forms of tuberculosis. He gave 1260 injections to 100 children.

Spondylopathy. Van Amstel successfully used calcium in traumatic spondylopathy (Kuemmell's disease). Dubois recommends it in spondylitis deformans.

Sprue. Shepard claims that calcium therapy is a very valuable therapeutic aid in sprue.

Scott reports excellent results from combined calcium and parathyroid therapy. He found that calcium absorption is not interfered with in sprue; but that the ionized calcium of the serum was reduced to 30-40 per cent. Shepard and Fleming, who used Scott's method, also report excellent results.

Whooping Cough. The author has been using calcium lactate, orally, in the treatment of whooping cough for the last few years, with uniformly good results. He has found lime to have a greater antispas modis effect than any other remedy for this disease. It is the only one which seems to exert a real curative effect; probably because of the distinct deficiency in lime shown by children suffering from pertussis.

Summary and Conclusions

Calcium is indispensable to the simplest as well as to the most differentiated animal organism. It occurs as an important combination in the nucleus of the cell where it seems to perform the most vital functions. Its specific properties seem to be (1) decreasing the permeability of the cells, thus preventing the influx of the metallic ions Na and K; (2) its avidity for water. Most of its actions in the body may be traced to these two properties.

Food is our only source of lime, hence the importance of

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including in our diet, foods rich in lime. Among these the green leafy vegetables, cheese, milk, fruits and nuts are the best.

The absorption of lime salts does not run parallel to the ingestion. Absorption is increased when the alkalinity of the duodenum is reduced. Orange juice and milk sugar promotes the absorption of calcium from the small intestines, while excess of fats and other food prevents it by precipitation of insoluble calcium soaps. Absorption of lime is also prevented by a too alkaline diet, weakly-acid gastric juice and the insolubility of some of the lime salts.

It is only lately that we have come to understand that to be absorbed, lime salts must be in a medium tending towards acidity, while to be retained, the blood alkalinity must be increased. The vegeta acids such as citric, lactic, etc., fulfill both conditions. They render the duodenal content more acid while the blood becomes more alkaline owing to the fact that, after absorption, they are oxidized to carbonates and combine with the acids in the blood.

Calcium is excreted mainly by the large intestines and kidneys. Failure to estimate the amount of calcium in both excretions simultaneously, has caused great confusion in the older reports on calcium metabolism. The amount of calcium in the urine alone does not reflect the actual state of calcium metabolism. The amount in the feces complements that in the urine. The difference between the lime supply and the calcium excreted represents the amount circulating in the body.

The metabolism of calcium beyond the intestinal wall can be accurately gauged by estimating the concentration of calcium in the blood serum. The difference between this amount and the total excreted in the feces and urine will give us an approximate conception of the amount of lime retained or fixed in the tissues, provided we keep account of the exact amount of the calcium intake from food or medication.

There is a significant relation between calcium and phosphorus metabolism in some pathological conditions where the ratio between these two substances seems to be more important than the amount of either of them.

The calcium content of the blood serum is fairly constant

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and cannot be used in itself, as a criterion of the calcium reserve of the body.

Calcium fixation in the bones does not necessarily imply an adequate supply of calcium to the soft parts, e.g. nerve tissue. As a matter of fact, the supply of calcium to the soft tissues seems to depend on such factors as acidity and the parathyroid hormone which mobilize the stored-up calcium and make it available to the soft parts. This is why hydrochloric acid has been used in the *temporary* treatment of tetany: It dissolves the stored calcium which is then carried to the nervous system by the blood stream, thus stopping the convulsions temporarily.

The level of calcium concentration in the serum depends on its alkalinity which determines the quantity of free calcium ions. The more alkaline the plasma the less calcium ions. The more acid substances in the plasma, the more calcium ions rush to neutralize them and the more lime is excreted. Blood alkalinity thus favors calcium retention in the bones while acidosis promotes calcium losses.

Vitamin D probably helps in mobilizing the stored calcium by stimulating the parathyroids. Cod liver oil and the ultraviolet rays have apparently the same effect of increasing the calcium-dissolving power of the plasma.

Calcium retention does not run parallel to calcium absorption. There are many factors which control the fixation of lime in the bones and soft tissues. Most important are the integrity of the endocrine system, especially the parathryoid glands; also a sufficient amount of vitamin D and ultraviolet rays from either the sun, the mercury-quartz lamp or the arc lamp. These principles of calcium metabolism may be applied to therapy as follows:

Prevention of de-calcification by the adoption of a more rational diet, rich in lime salts and vitamin D, and more frequent exposure to sunlight. The introduction of special-glass windows which allow the penetration of the short ultraviolet rays of the sun into factories, offices and dwellings. These should be specified for all nurseries. Irradiated foodstuffs may be substituted to direct ultraviolet rays.

During pregnancy, lactation, convalescence and the healing

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of fractures these measures may have to be re-inforced by calcium therapy and actino-therapy.

Growing animals react differently from adults to calcium-mobilizing agents. In the young these agents do not preclude calcium retention; but in adults they invariably lead to increased excretion and abnormal deposits in the soft parts.

Contrary to the results obtained by former investigators, it has been proven, within the last few years, that the oral ingestion of soluble calcium salts, when properly administered, are absorbed into the blood; keeping its calcium concentration on a high level for a relatively long time, thus ensuring lime retention.

The general practitioner need not, therefore, resort to intravenous or subcutaneous injections with its attending dangers; but may prescribe lime salts to be taken by mouth with a fair assurance of success, in such diseases as dental caries, rickets, scurvy, tuberculosis, tetany, osteomalacia, etc., etc. This calcium therapy to be combined with ultraviolet radiation, parathyroid extract in addition to the proper diet, as conditions may dictate.

It would also seem advantageous to try this combined calcium therapy in serous effusions, hemorrhagic diatheses (hemophilia, purpura) anaphylactic phenomena (food allergies, asthma, urticaria, hay fever), acidosis, cardiopathies, nephritis, edemas, certain inflammations and many obscure conditions which seem to be due to lime deficiency. Finally it might not be amiss to try calcium therapy as a last resort in inoperable cases of cancer and to add some lime to every so-called tonic.

In cases where the means for insuring calcium retention in the tissues cannot be applied, it would be advantageous to use the author's method of re-inforcing calcium therapy by frequent inunctions of parts of the body with creams or lotions containing irradiated lanolin.

Calcium is best given orally, in the form of the lactate in doses of 1-5 Gms. three times daily, before meals and in orange juice. This fruit juice in the experience of the author, acts as a mild acid, in the duodenum, where it helps to promote absorption. After absorption the citrate increases the alkalinity of the blood by becoming oxidized into carbonate, thus further favoring calcium retention.

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Final Results of Endothermy in Superficial Malignancy

By H. H. Hazen, M.D.

For the past 7 years the author has used bipolar endothermy, usually, but not invariably combined with X-ray or radium in a selected group of superficial cancers. Growths that were intractable to irradiation, of large size, or those invading cartilage or bone were treated in this manner. In addition where there was haste upon the part of the patient this method was employed. For the past year it has been used as routine except in a few cases of the eyelid, and in bedridden patients.

All operations have been done under local anesthesia with novocaine. In two instances a few whiffs of gas, or of chloroform were necessary. Ether anesthesia is very dangerous, as the gas may be ignited. It is possible that the use of an electric fan might render general anesthesia safe. Care must be taken to secure a complete anesthesia as it is difficult to operate upon a restless, or moving subject.

If there be any doubt as to malignancy a biopsy is done with the cutting blade and the growth then deeply fulgurated with a bipolar current, care being taken to give a good margin. The charred area is removed with the curette and the base again treated until sufficient destruction has been accomplished.

Small wounds are usually left exposed to the air, but large wounds are dressed every other day, usually with a dry dressing, but at times with boric ointment. When the scab begins to loosen, usually in from 7 to 10 days, the wound is touched once a day with a solution of mercurochrome, or gentian violet.

Small wounds heal in 4 weeks, large ones in from 5 to 6 weeks. The cosmetic results are amazingly good as the wounds granulate from the base.

So far the only complication of any importance has been hemorrhage from a periostial vessel. This can be checked by pressure until the vessel can be located and tied.

The final results of treatment in 52 cases are as follows:

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Patients lost sight of	1
Died from other causes	1
Recurrences, cured by 2nd operation	1
Failures	2
Cured 5 years	6
Cured 4 years	5
Cured 3 years	9
Cured 2 years	15
Cured 1 year	12

The two cases listed as failures deserve a few words of consideration. One case was an extensive carcinoma of the upper lip, secondary to an X-ray burn. The second was an ulcer of the cheek which had been heavily irradiated, which was believed to be a 3rd degree radiodermatitis and which was treated by the monopolar current with insufficient margin. In one case of squamous celled carcinoma of the cheek a recurrence at the edge of the scar was cured by a second treatment.

To show the character of the lesions the following table is presented:

Carcinoma vulva	1, died nephritis in 3 months.
Cancer of tongue	1, well one year, died pneumonia.
Cancer of lip	2, well.
X-ray cancer of lip	1, failure.
Squamous celled of cheek	1, recurrence, cured 2nd operation.
Basal celled, extensive	6, cured 5, lost sight of 1.
Basal celled cancer, small	40, 39 cures, 1 failure.

In a total of 50 consecutive, unselected, followed cases there were 2 failures, and 96 percentage of cures. With X-ray alone, I have reported 80 percent of permanent cures in unselected cases, and MacKee figures are similar. I have also reported a series of 178 unselected cases of basal celled cancer treated by surgery with 86 percent of cures. It can thus be seen that deep bipolar fulguration gives better results in unselected basal celled cancer than does any other method. It still remains to be proven just how useful it is in such conditions as cancer of the lip.

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The Prostate Gland

Its Most Common Diseases

By WINFIELD SCOTT PUGH, M.D.

In view of the fact that at least 80 per cent of the adult males suffer from disease of the prostate gland at some time in their career, it at once becomes a factor of great import in the human economy.

This organ normally is about the size of a horse chestnut, located low in the pelvis, surrounding the neck of the bladder. The prostate, however, varies greatly in size from the second to the sixth decade in life. These changes are pretty well defined so that an intelligent physician can tell at once if he is dealing with an abnormal organ. The prostate is richly supplied with veins. These vessels are often large and tortuous, and frequently found to contain large stones. In a very large autopsy experience we have found that almost half of those dying after the age of thirty-five had prostatic vein stones. They often cause a lot of trouble and are only detected by the more experienced urinary surgeons.

The prostate is not a urinary organ, but it imparts virility to the male seed. It does this through exuding a substance into the urethra and seed sacks. This prostatic fluid is also a carrier for the male seed or spermatozoa. It is milky white, of a very penetrating odor and alkaline. Its composition varies greatly and thus furnishes a valuable index in case of prostatic disease.

What is the cause of prostatic disease? Inflammation of this organ in youth and middle age is practically always the result of an infection by gonorrhea. It is our experience that the prostate is involved in almost every case of gonorrhea. Therefore, as it is estimated that almost 80 per cent of the male population acquire that disease, prostatic infection must be a very common malady. We have heard it said that about 15 per cent of prostatic inflammation can be traced to sources other than gonorrhea. We will concede this point. In our own

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experience associated with the treatment of over 25,000 cases, we can state positively that we have never seen a prostatic inflammation not due to gonorrhea or sexual irregularity.

Symptoms

When the patient comes to us we may see the signs of disease limited to the area of the gland itself or they may be widely scattered. We usually note that there is a history of gonorrhea or, as some naively call it, a strain. One of the most common symptoms complained of is an itching in the urethra or urinary tube, with at times a feeling of weight in the rectum. Often there is a little difficulty starting the urinary stream and a frequent desire to void.

Only too commonly our patient complains of rheumatism. The hackneyed word covers a multitude of sins. The connection between gonorrhea and rheumatism so-called has, however, long been recognized. The pain of prostatic disease is often referred to one or two places. The first is in the back over the kidney region. We are seeing these patients constantly because the rheumatism or lumbago, as it is often called, refuses to respond. Frequently this pain will similate a kidney stone. Before the days of scientific urology more than one prostatic had his kidney inspected for stone. Another frequent location of prostatic pain is at the tip of the spinal column, the so-called tail-bone pain. In the male this ache spells prostatic disease.

Many obscure pains which have baffled all attempts to determine their cause clear up as if by magic when the physician locates the disease after inserting his finger in the rectum. This is especially true of joint pains and those referred to the legs which for years have masked under the name sciatica.

Various nervous manifestations, too numerous to mention, have their origin in the prostate gland. These conditions often go on for years without relief, because the patient has been unwilling to admit having had an old gonorrhea. Even the most truthful patient will lead his physician astray. His condition is at times very accidentally recalled, or the patient in some way comes to the specialist. To the physician the picture

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soon becomes clear and he can unfold to the patient the latter's life panorama.

Certainly every adult male suffering from joint pains or rheumatism should have a rectal examination as part of the observation routine. It is no exaggeration when we say that we have cleared up our rheumatic wards more than once by treating the prostate.

Sexual incapacity as the result of prostatic disease is one of life's great tragedies and is responsible for a very high percentage of domestic unhappiness. This is often thinly disguised in the courts by the words cruelty or incompatibility.

The chronic prostatic is often a very difficult patient to handle. He is at times a sufferer from chronic headaches and is sullen and queer. Many of our so-called odd characters are undoubtedly sufferers from a chronic prostatic inflammation.

In addition to the foregoing there is frequently the so-called morning drop. A little pus bead may be present on the pajamas or the urethra is blocked by a crust. An examination of the urine practically always shows many threads. These filaments are casts of the prostatic ducts.

The physician can almost always make a diagnosis with a little care. He, however, commonly overlooks the inflammation of the seed sacks or seminal vesicle which accompanies it. While this examination may make the diagnosis, the extent of the disease can only be determined by the introduction of a cysto-urethroscope.

Treatment

How shall we treat these cases of chronic prostatic inflammation? We say chronic because one seldom sees an acute case except in association with an early gonorrhea. We have frequently heard it stated that internal medication or medicines taken by mouth were of no value. Such has always been our opinion. Of late, however, several new drugs have been introduced. They give the patient much relief and have a decided influence on the prastatic infection. More of this anon.

The usual treatment of prostatic inflammation consists in the use of the important antiseptics such as silver nitrate or similar substances to fill the bladder. The prostate is then

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massaged. It is a very slip shod procedure to massage the gland on an empty bladder as it is conducive to a swollen testicle or epididymitis. Prostatic massage is often condemned, usually without justice. We only too frequently find the physician is massaging the prostate when the lesion is elsewhere. Just recently we saw a case of seminal vesiculitis in which the prostate had been massaged for about two years but the symptoms still persisted. Treatment directed to the proper organ soon cleared the patient of his suffering.

Surgery in Prostatic Inflammation

Only recently we heard a prominent surgeon say operations were never indicated in prostatic inflammation. To this we must take exception. In our experience almost 25 per cent of these cases require surgical treatment for their ultimate cure. Note that we say cure. Alleviation of symptoms is another matter.

The physician who does not recommend a thorough urologic examination in the presence of a persistent prostatic condition fails in his duty toward his patient. Many of the lesions which cause a persistence of the disease are polyps, cysts and at times definite hypertrophy of some of the glandular tubules, obstruction plus infection. We cannot get rid of the infection unless the obstruction is removed. Chronic prostatitis is definitely a cause of bladder neck obstruction and this must be treated surgically.

The polyps and cysts can usually be destroyed by the high frequency current. The bars are best treated by the Collings electrome incision. There is a group of cases where we have irregular glandular swellings projecting into the bladder that the electrome will not eradicate. In this group we must open the bladder and remove the masses. Thomas tells us some cases require removal of the prostate. We have never encountered any in our own practice. Opportunity has been afforded us to see a prostatic removal attempted in such cases. I will simply add briefly that the end results were sad indeed.

Tuberculosis of the prostate gland occurs at times as part of a general genito-urinary infection. One frequently hears of tuberculosis being either genital or urinary. In the majority

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of cases both systems are involved. Fortunately this disease is not common here. In post-war Europe it was indeed frequent.

Prostatic Hypertrophy

When the male begins to approach the age of sixty he is quite likely to be annoyed by another trouble known as prostatic hypertrophy or prostatic adenoma. In our experience it attacks about 30 per cent of the adult males. Just what this enlargement is has not been determined to the satisfaction of all. One group of investigators believe it is a definite tumor formation, while others claim it is a long continued inflammatory action. If it is an adenoma why does one not meet it more frequently in the autopsy room? In spite of this latter statement one is compelled to admit that the gross specimen does suggest a tumor. What percentage of these cases are cancer? We believe almost 20 per cent. These cases are often very deceiving in that at times the cancer element is difficult to find. Just as in bladder tumors, one may feel he has examined the whole mass thoroughly but cancer cells may be overlooked in a small unexamined portion.

Symptoms

How shall we know that we have a prostatic enlargement? We must say right here that we find two groups, one which we shall call the silent prostate, as it produces almost no symptoms until well advanced. The second group we shall call the active. In the latter group, however, the symptoms do not appear by any means suddenly. Rather are they insidious in their development. Our patient notices that he is passing his urine a little more frequently than usual. This is particularly so at night. For years he has seldom gotten up from his bed to void. Now he arises two or more times. Perhaps when he receives the call it is a little urgent. This becomes increasingly more so. Now a little difficulty appears in starting the stream. Complete inability to pass the urine may occur at any time. What does our patient tell us about this? Last night I got up to urinate, the room was a little draughty, I caught cold and it has settled in my bladder. We examine the urine and note

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it is very foul, infection of the retained urine as a rule has taken place. Our patient has to be catheterized. Unfortunately our process is not all limited to the prostate for evidence of back pressure is occurring constantly. We have a distended bladder with perhaps a number of diverticula. In automobile parlance these latter would be called blowouts. A congenitally weak portion of the bladder gives way under the back pressure and a sac forms outside the bladder at this point. Continuing we have a distention and dilatation of the ureter and kidney pelvis. The pressure may become so great that a large portion of the kidney substance is destroyed with great nitrogen retention resulting. Involvement of the heart and blood vessels have undoubtedly taken place by this time.

Every case of prostatic enlargement must be regarded as a definite individual study. Practically all of these cases will require surgical removal for their cures. The exact technical procedure will depend upon the particular case. The operation is not of so much importance as the pre- and post-operative treatments. It is outside the scope of this paper to cover such a big subject as treatment. We may say briefly, however, that in our opinion the high prostate is best approached from above, the low prostate is better treated by the perineal route. All cases should be operated upon under local or spinal anesthesia. Except in very serious cases our preference is for the latter.

30 East 40th St., New York.

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Reflections on Symposium on the Medical Profession

By WILLIAM DEAN HOWELLS

In Harper's Monthly Magazine, May 1917

Within the present year (which is pretty contemporaneous for the slowly arriving Easy Chair in the mention of any event) a popular medical review has published a symposium about the faculty.[1] We have found this such good reading that we wish to share some of our impresssions of it with the devotees of this department, and to partake their pleasure in the honor paid, with little qualification, by people of so many other callings to what they seem mostly to think the highest calling of any. Not that there are no exceptions to the rule of praise from the authors, artists, actors, lawyers, journalists, politicians, clergymen, and the like; there are some who have their misgivings and own them, and oddly enough these are often ladies, literary ladies. But why should we say oddly? The sex has begun to do its own thinking about so many things that it should not surprise us to have it do its own thinking about doctors. It is only fair, however, to say that after condemning doctors for some things these critics are apt to end by acquitting them for others, and they always seem to have a particular doctor in mind and not doctors in general. Perhaps one of the vididest of them best expresses the common feeling of women about them when she says, "I think there is nothing better than a good doctor, and nothing worse than a bad one," which is what most men would say of doctors, especially men born of women.

Some men who for different reasons have not taken part in the symposium do not make this distinction. They leave you to think that if there is any difference in doctors one is worse than another. Le Sage, the author of *Gil Blas,* introduces no good physician to counterbalance Doctor Sangrado, though there were probably more than one such at the time, and are now, practising medicine in Valladolid, in spite of the sweeping condemnation which Ford passes on all the doctors of the

[1] MEDICAL REVIEW OF REVIEWS, January 1917, pages 1-28, *A Symposium on the Medical Profession,* with Sixty-six contributions..

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in Anna Karénina, though indeed he is habitually distrustful go back to the seventeenth century for blame of the profession in literature; nothing could be severer than the censure, the doubt and scorn, which Tolstoy heaps upon the medical *savans* in *Anna Karenina,* though indeed he is habitually distrustful and contemptuous of all scientists; and as for Mr. Bernard Shaw, what could be more jubilantly satirical than his treatment of the profession in *The Doctors' Dilemma,* or the voluminous preface to that comedy?

To be sure, Mr. Shaw's doctors are English doctors, and what American has ever been sick in England but wished he was safe in the hands of his family physician at home? Yet, having said this, and having remembered the nauseous bottles habitually prescribed by them, can one fail to recall some one of them who was as good as an American doctor, or even better? This other may have been Scotch rather than English, but there are odds even in American doctors. Their science, not to say inspiration, is of later date than we may like to imagine in our patriotic fondness. The pioneer practitioner in the West, if we may, as we must, believe one of those wonderful brothers who have established a world-renowned hospital on the shore of the northern Mississippi, was but a little advance upon the primeval Medicine Man of the region, and was the by-word and mocking of the German physicians who had settled there. Yet it must be remembered that it was a Kentuckian of sixty or seventy years ago who first performed an operation denying and forever reversing the axiom that "to open the abdominal cavity was murder" and saving innumerable lives since by this effect of his courage and his faith in his divination if not instruction. In spite, however, of our feeling in our bones that American doctors are the best, there are probably Englishmen who when at all sick over here wish they were safe at home in the care of the village apothecary, or the local "medical man," or even a knight of three guineas a visit. There are New Yorkers who distrust the skill of Boston, and Bostonians who know they would not have died in New York if they had only had a physician from Marlborough street to see them through their pneumonia in the alien metropolis.

The great thing is the trust and honor we all feel for the

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physician at large. Few are now the satirists compared with those who once derided them, and if a vast cult has grown up to renounce them and match its prayers against their positions, there are even within this cult recognized Healers who hold the place of physicians, though they use no physic. We do not know how these manage in surgical cases, but their moral influence must be something of the sort we Unchristian Scientists feel when a doctor of our unfaith comes into the room and begins our cure before he has written a prescription, much less administered any medicine. The personal equation is the thing, as the ladies of the symposium are always saying, when they affirm that they abhor or worship a doctor as he gets on their nerves or not, or as he is or is not a gentleman. If doctors are almost universally gentlemen because they were born so or because their noble Hippocratic oath has made them so, they are successful in virtue of that quality as much as by the potency of their drugs. They are far oftener philanthropists and martyrs than cads or brutes, though sometimes, though very rarely, they are snobs. One might not prefer them to come into one's sick-room at night in evening dress, as though always dressed for dinner, but this might be because one was not in good society. A doctor can never tell beforehand, and if he is one's old family physician one does not grudge him the effect of having just happened to have dined out. But no matter how he comes, how welcome he is when one has not the least notion what the matter is, and is only sure that the pain is something awful! The pain begins to go at the mere sight of the doctor, and if he assures you that it is merely functional and not organic you are ready to laugh, however it continues to hurt.

An almost miraculous thing in a physician is that he is not only immune from contagion, but that his celestial armor bears no taint from one patient to another. Quite possibly he is coming to your bedside from the sick-chamber of some most catching ill, but you do not take it from him, while some unconscious Typhoid Mary carries the fever from one kitchen to another and spreads it throughout the house. It is notorious of doctors how they expose themselves to the pestilences of the poor mostly for no fee, and then come to you, trusting to their

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passage through the open-air to have blown them clean of the infection. How is it they do not carry measles, scarlet-fever, diphtheria, smallpox, from one house to another? Perhaps they do, but we never know it, and do not think of the danger we have run when we hear that they have died of the disease themselves. We only think of their self-devotion in giving themselves to those poor, whose best friends they are, and whose fees it is said we sometimes pay without knowing it.

In spite of the malign chances we welcome them to our own afflicted homes; but the nicest way is to visit them at their offices, where we go for a prescription, or to ask them what they think ails us, and whether it is merely functional and not at all organic. If it is merely functional we begin to laugh and crow in our relief and fall into one of those talks with the doctor which are the most relishing talks in the world. No other sort or condition of men talks half so well, so intimately, so wisely. The physician knows more evil of a kind which it is always so interesting to hear than a man of any other following. He can tell you more dreadful things of other men than any lawyer, preacher, or merchant ever imagined, but he keeps the secret of their identity from you under the lock and key of his Hippocratic oath. He can philosophize life as no other can, and he is merciful to human frailty in the proportion of his large and deep experience.

What an awful experience his experience is, compassing that knowledge which he cannot impart and can scarcely more than intimate to the one it most concerns upon the bravest urgence, the most vital necessity. How can we ever joke about doctors, although they so often joke about themselves? How can we turn from this solemn view of them, from their wise, kind talk, and think of the dozen or half-dozen other patients in the anteroom whom we are keeping from their turn while we selfishly listen! Why do we take our prescription and go, as in all decency we should? But we do not budge until the doctor himself stirs in his chair, and for shame's sake we start, though half an hour before we sat among those outsiders and inwardly cursed the babbling or doddering imbecile within, who was keeping us from our turn with the doctor. The best way, the only true way, is to have an appointment, and then,

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announcing ourselves at the house-door, go sailing through those ranks in the anteroom and coming to anchor in the doctor's own study.

For the time he is not *the* doctor; he is our doctor. It is the peculiar quality of him that he shall seem the sole property of each sufferer in turn, and shall be as entirely the physician of the pauper whose fee you may unwittingly pay, as he is yours. But what are we saying? In nine-tenths of the cases, or at least half, nobody pays the pauper's fee, and the doctor gives him time, his skill, and his very life as freely to the destitute as to the affluent. What other man does the like? The priest or preacher? Yes; but as one recusant in denying the claim of the symposium upon him says, "The doctors are the real Doctors of Divinity and the Saints of the earth," and they outnumber all the other saints, who, it must be allowed, also exist and live and die for us.

A good deal of cheap mockery has always followed the failures of the doctor, and a ghastly merriment has attended his defeat by the enemy who triumphs over all at last. But none of those who have shared his failure, and draining the cup of fear, which he would fain have kept the cup of life, to its bitter dregs, are among those who jeer even at the idea of his defeat. The bereaved often turn more willingly to the doctor who has not saved their beloved than to another who has not lost them. They remember as their chief consolation that everything their doctor knew or could, he did, and after the first throe of anguish has passed they wished to believe that his best was the best there was. They wonder how he could have had the courage to tell them there was no hope, when they saw him fighting for them to the last, or to hint from the first that there was little hope to trust to. Then indeed he became their doctor, as we all feel our doctor to be ours, and gave himself night and day to keeping their hope alive.

One of the women who takes part so wisely in this symposium, and who perhaps speaks more wisely and justly than any other, reminds us of the sins of the patient against the doctor, and brings home to the guilty sufferer his blame when he has not done his part in the common enterprise of saving his own life. "At the best the most of us are bad patients,

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often perverse in following directions and no wise co-operative, as would be necessary in any other relationship where two parties are concerned. Often we are not long grateful even when our lives have been virtually given back to us." We are, in fact, shamefully passive when we are no worse. What angel wife has not had to struggle almost to shaking the suffering husband in order to make him take his medicine at the times the doctor has directed? What man has not shirked his bitter drops, or nauseous drugs, or, after taking them, has not kicked or thumped about in bed until given some water to wash the loathsome savor down? The facts are disgraceful to manhood, which it is impossible to respect under the circumstances. Parents are as bad as children would like to be, and the men are worse than the women; but, then, men are such cowards. The doctors are the saints of the earth, yes, but they must be well-nigh driven to swearing when they reflect upon the unworthiness of most of the people they devote their lives to.

It has long been known that there are odds in deacons, and doctors probably vary as much as deacons. Every patient has his preference in physicians, and we hope we may own without defense that we like American doctors better than any other, and after them Scotch. German doctors are not so bad as a pro-ally would now like to think them, and we have found Italian doctors who have practised in America very conducive to recovery. It is much in the favor of the English doctor that the English like them; and, now we think of it, we have never really died from one of their doctors. In Spain, where neither Hebrews nor Germans are acceptable to the national prejudice, we have found Austrian Jews wisely sanative, and in Paris we have recovered gladly under the science of French doctors who have practised in California.

We may not safely allow a homeopathic or an allopathic leaning, and we are not going to do so. If it is a question of something acute or urgent, and you are feeling very rich at the time, you had better take your respiratory tract, for instance, to a specialist, and have him fend off the threatening grippe. There is something so absolute about a specialist, with his swabbing and spraying, and his smiling question of whether

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it hurts; and then if he fails you can always go to bed for a week in the care of your own family physician and spend a week there as usual in getting well.

The specialist is mostly, if not always, a city man, but his practice does not usually lie in the tenements where so many doctors give themselves for nothing to those who have nothing to give in return. But very likely (we do not really know) the specialist does his gratis good works in the hospitals; we may be sure that a specialist, as he is a doctor, gives himself gratis somehow or somewhere. No man who can afford him will wisely forego him, and he will not forego those who cannot afford him. He is the last word of medicine, the bright consummate flower of surgery. But while we are praising him, we are thinking of another type of doctor, just as devoted and perhaps as efficient numerically, for he probably has ten times as many patients as a specialist. We are thinking of the country doctor, whose life the reader will as readily think of. Who does not think of him in some neighborhood which, winter and summer, night and day, he blesses? He is as modern as the specialist in his way, and if he is like the one we are thinking of, he was graduated from a good school, and every year he gives out of his crowded time certain days or weeks for running up there, and renewing his lore in the society of those who know the last word of his science and who are willing to impart it, so that the summer visitor shall be as safe in the country doctor's care as in that of his own family physician, and the rustic sufferer shall have the benefit of all the modern drugs and ideas. The country doctor keeps them both at the command of his patients, and he puts up his own prescription from the hand-bag, which he bears when he arrives with the ideas shining from his face. He used to arrive in a buggy, but now he comes in a motor-car, which perhaps he drives himself, and which you hear snuffling before your door in the dark or daylight, and know before your bell rings, or his cheery voice sounds across your threshold. Very likely you are not very sick. Let us hope not; but, if necessary, he will examine your heart, and if you are in years he will take your blood-pressure and will tell you that you have the arteries of an infant, or that your bronchia are as clear as a bell. He is an optimist, but if

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there is cause for anxiety you will know it from his suggestion that he will look in again in the morning, or that you can 'phone him if you are not better. Probably there is no cause for anxiety, and with the medicine he has left you begin to feel that you do not need any medicine, almost before the snuffle of his runabout has died on the outer air. There is no apothecary's charge for the drugs and the doctor's fee is a dollar, received with reluctance at the end of the summer. It may have been as richly earned as the specialist's fifteen, but this is not saying that the specialist's fee is not richly earned.

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BOOKS

165. Moses Einhorn and L. M. Herbert, editors, Harofeh-Ho-Ivree, New York, 1929. The Hebrew Medical Journal is devoted to the development of medicine and also medical terminology in the Hebrew language. This volume contains many original articles on medical subjects as well as on the history of medicine. The following may serve as an illustration.

Dr. Moses Einhorn discusses gastro-duodenal ulcers, a study of 1500 cases. The writer gives an interesting review on the occurrence of ulcers of the stomach and duodenum, on their anatomical considerations, mechanism of production of gastric and duodenal ulcers, of their frequency and types, of sex, age and seasonal incidence. For instance, the author regards the following types of ulcers: (a) Gastric: Penetrating 54 per cent; bleeding 8 per cent; uncomplicated 38 per cent. (b) Duodenal: Uncomplicated 96 per cent; bleeding 3 per cent; penetrating 1 per cent. In reference to sex incidence, he says that ulcers occur five times more in male than in female, and the ratio is 5:1. Duodenal ulcers occur twenty-four times more than gastric ulcers in male, and the ratio is 24:1. Gastric ulcers occur three times more in female than in male, and the ratio is 3:1. In reference to age, he states that first and second decade, ulcers are infrequent; from the second to fourth decade, the frequency rises to 70 per cent in duodenal ulcers, while in gastric ulcers, the incidence is quite small. From the fourth to the sixth decade the percentage in the frequency of duodenal ulcer declines, but increases in gastric ulcer, reaching 50 per cent at the beginning of the fifth decade. In regard to the seasonal and monthly incidence the author says that ulcers occur during certain definite seasons, as follows: Fall, 42 per cent; Spring, 35 per cent; Winter, 19 per cent; Summer, 4 per cent. The percentage of recurrences are as follows: March, April and May, 35 per cent; June, July and August, 4 per cent; September and October, 32 per cent.

Dr. Lazar Rosenthal writes on local immunity. He says that not all phenomena in local immunity can be explained on the sole basis of antibodies and phagocytosis. A great number of data tend to show that there are other factors involved. One of these factors, that of local immunity, has been developed lately by Besredka and his followers.

Dr. Joseph Tenenbaum writes on the pathology of prostatic hypertrophy. He says that prostatic hyperthrophy is not a disease per se. It is with the

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secondary changes in the urinary tract caused by the proliferation of the periurethral glands that true pathology begins. From the degree and direction of these changes and their relation to the vesical-sphincter depend the ensuing uropathic complications. The writer says that there are two types of prostatic invasion: the intravesical, where the glandular masses interpose between the mucous membrance and muscular structures of the internal sphincter, causing dislocation of the latter; and the sub-vesical form, where there is no direct growth of the masses into the lumen of the bladder, the base of the latter being raised in toto. In the first type the obstruction is sphincteric, associated with alterations in its outline and symmetry of the bladder. In the second it is urethral. The urethra undergoes stretching elongation and its lumen is distorted.

Dr. Henry Keller writes on backaches. He says that since a variety of causes are capable of producing backache, it is necessary for the physician to examine the patients thoroughly in order to find the source of the trouble. In view of the fact that there are direct and indirect causes, it is self evident, that a general physician is the one best trained to examine a patient impartially, and is most capable of making a tentative diagnosis.

Dr. Jacob M. Ravid gives a review on the theoretical and therapeutic aspects of insulin. He writes that among the topics dwelt upon are the following: Historical review of the modern concepts of diabetes mellitus and insulin from Minkewski to Banting. Earlier and latest methods of preparation of insulin. Physico-chemico-physiological aspects of insulin. The symptom-complex "insulin-hypeglycemia" is discussed in detail. A summary of all its signs and symptoms, including author's recently observed transient hemiplegias, is given. It is pointed out that the blood sugar level per se is not always an exact criterion of the symptomatology of an "insulin reaction." A general plan of insulin therapy is outlined. The particular point is brought out that in the case of the seemingly insulin-refractory patients diurnal 3-hourly blood and urine sugar determinations are to be made and insulin to be exactly adjusted, even if nightly injections are to be resorted to temporarily.

Dr. Raphael A. Bendove writes on silent pulmonare cavities. According to him, more than fifty per cent of all pulmonary cavities lack most, if not all the standard textbook signs of cavitation. These silent cavities are of three types which he named (a) ABSOLUTELY MUTE, i.e., such cavities over which no suspicious signs or any pulmonary lesion can be elicited, (b) RELATIVELY SILENT, i.e., such cavities which do not exhibit any of the classic cavernous signs but over which other adventitious sounds are heard, and (c) intermediate, i.e., such cavities which belong both to class A and B. As a rule the relatively silent and the intermediate are of a poorer prognosis than the absolutely mute cavities.

Dr. Asher Goldstein writes on artificial hernia. Dr. Israel Finkelstein gives a simple formula for calculating maintenance diet in diabetes for adults and children. Dr. Benjamin Damsky discusses the problems in the manage ment of gonorrhea from the standpoint of the general practitioner. Dr

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Aaron N. Gorelik reported an unusual case of bilateral gangrene of the lower extremities.

Dr. Solomon R. Kagan writes on the causes of disease according to the Talmud. He says that the Talmud proposed that the causes of diseases are uncleanliness, cold wind, improper food, alcoholic beverages, worry, excesses, fear, trauma, hereditary weakness, infections and germs. The writer states that the Talmudic Rabbis evolved a system of studying on scientific basis. The scope of their investigations and conclusions was considerably more advanced than was the standard of medical knowledge of that time. The author concluded that the Talmudic medical statements have a great value from a historical point of view, being guides to the development of this subject, its different stages and its construction.

Of special interest is the treatise on hemorrhoids, an original manuscript by Shlomo Eben Ayub of Bedrash, France (1255 A.D.). It is edited for the first time, from two manuscripts found in the Jewish Theological Seminary library, with a preface by Prof. Alexander Marx, and with an introduction by Dr. L. M. Herbert.

Of great interest is the article of Rabbi Nahum Ben Horim on the Eye in the Talmud. A complete review is given by Dr. Solomon R. Kagan on "Talmud and Medicine" (Dr. L. Katzenelsohn), and by Dr. J. M. Ravid on "Thesaurus Medicus Hebraicus" (Alexander Malch).

This journal should perform a genuine service in finding proper Hebrew names for many diseases and their symptoms. Most of the articles are of original nature, and discuss scientifically many important medical problems. The publication of the second volume is a manifestation of the renaissance of the Jewish culture and Hebrew language throughout the Jewish civilization scattered in all quarters of the world.

SOLOMON R. KAGAN, M D.

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GIOVANNI BATTISTA MORGAGNI [1682-1771]

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PRACTICAL THERAPEUTICS

The Evolution of The Proprietary Laxative

CHARLES W. GREEN, M.D.
New York City

Of proprietary prescriptions self-administered by the patient without professional medical advice, laxatives form by far the largest group in point of sale. Hence the subject of their choice, the popularity of this one or that one in buying favor as one succeeds another and the causes therefor, become a matter of considerable interest to the practitioner.

This is particularly true when we recognize that about 100 per centum of the people the profession is called upon to treat beyond the age of infancy, voluntarily assume the duty of self-doctoring for constipation, or being at a more tender age act the role of patient with mother, father or grandmother filling the Aesculapian role.

A review of history of these proprietaries over a long period of years shows decline to almost the vanishing point of the mercurials and more drastic purgatives. Since the start of that era to the present, castor oil and Epsom salts have maintained some popular position.

But the makers of such proprietaries have ever been alert to improvements in ingrediency or form and this activity has produced one after another over the years, a series of popular laxatives which have grown into popular favor, a new one relegating an old one to the rear, and that in turn sharing the field with some newcomer of popular appeal which "did the work" to public satisfaction.

Thus the chain of progress went on, older forms of proprietary cathartics falling into the limbo of forgetfulness and newer, more pleasing forms rotating in public favor because of the cold medical fact that the best of them "wore out" in efficiency under continued use by the same individual, at which time the patient took up the one next uppermost in mind. Thus the circle ran.

The startling sales progress made, however, by the newest form of laxative—Feen-a-mint, a laxative in chewing gum form—and all within a period of seven years arouses certain queries that are well worth answering.

Why should Feen-a-mint, unknown some years ago, become today the fastest selling laxative of all the laxatives marketed in America, especially since its onward march in favor has been one of progressive upbuilding in public confidence from its beginning?

If the answer could be attributed to millions spent in extravagant newspaper or magazine advertising, at best that would explain forced sale through tremendous publicity. But as there has been no such extravagant investment, although generous, well-balanced appropriations have been expended in conservative announcements in periodicals of character, the underlying fact remains that the product Feen-a-mint must have within itself some compelling sales power which is the true foundation of its success.

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"What is this compelling sales power?" the physician may well ask. His answer will be found in the truism often expressed by expert advertisers to effect that any article of truly intrinsic merit, introduced into, however, highly a competitive field, will by the sheer force of its efficiency secure to itself such free advertising as only tremendous quantities of money can buy. Such advertising is the word-of-mouth recommendation passed from one person to another, piling up an irrepressible popularity as it proceeds and sustaining it by continued effectiveness.

This matter of continued effectiveness —the non-wearing-out feature so uncommon to the ordinary laxative, appears to be a well established factor in Feen-a-mint's progress.

Its chewing gum form, its exact medical ingrediency and standardization of dose, and the fact that Feen-a-mint unlike some less carefully prepared popular proprietary laxatives is manufactured under scientifically regulated condition in its own factories, are all items in the importance of its quick conquest of the American proprietary laxative market. Let us take these up separately.

The chewing gum form puts its laxative ingredient in such a vehicle that most complete solubility is attained. As it is an elementary, undeniable axiom of therapy that perfect solubility is indispensable to the accurate performance of an accurately specified dose, one can see at once that this chewing gum form of administration carries with it not the importance of a fad or fancy, but a physiological fact, possession of which gives the product a lead in efficiency over most pills and tablets at the very start.

Such solubility prior to digestive absorption is a *sine qui non* which applying to all proper food digestion, is even more essential to any laxative therapy, which has absorption as a needed requisite to promotion of peristaltic action.

And in connection with the two last paragraphs let us consider its medical ingredient—phenolphthalein. Especially in the use of this drug is promptly complete solubility of an ingested dose necessary.

Otherwise, there might follow, as does often follow with many remedies, the griping nausea or discomfort frequently caused by imperfect solubility, concentration of too much of the medication at single points in the colonic canal through mechanical presence as against the diffusive action obtained from its equalized presence as a completely absorbed medicament.

Also the type of phenolphthalein used is not the white of the U. S. P. but is a yellow variety which clinical test, gauged by unfailing popular result, proves to have a definitely superior laxative worth to the white.

Finally, the entire procedure of manufacturing the finished Feen-a-mint chewing gum tablet is carried on by its owners. Feen-a-mint in this regard differs from many proprietaries the factory processes which often consist of the taking of barrel or box shipments of a product made elsewhere for them leaving the only factory process one of assembling a made article into containers for commercial shipment to the consumer via the trade.

The doors of Health Products Corporation's great factories at 114 North 13th Street, Newark, N. J., are wide open every week day to any physician who cares to call. Nay more, the doctors are urgently invited and the trip is an interesting one.

The laxative in chewing gum form is here to stay. Its only true standardization as far as the writer knows is at the Feen-a-mint plant. Small competitors of whom there are many are chiefly non-national and the great bulk of them have their product made outside of their own control, they themselves acting only as boxers and shippers; thus the name "Feen-a-mint" constitutes a certain guarantee to the medical practitioner who prescribes it or recommends or sanctions its use when the subject is referred to him. And so it will be seen there are ethics within proprietarism as well as outside of it and the medical profession is very properly looking into such phases of the situation.

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MEDICAL REVIEW OF REVIEWS

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Psychopathology Number

CHARACTER DISEASES AND THE NEUROSES

Edited by

DORIAN FEIGENBAUM, M.D.

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Preface

Dr. Feigenbaum has requested me to write a few words for the special Psychopathology Number which he is editing, and I take the opportunity of wishing his work good success.

I often hear that psychoanalysis is very popular in the United States and that it does not meet there with the same degree of stubborn resistance as in Europe. My enthusiasm over this fact is, however, dampened by several circumstances. It seems to me that the popularity of the term psychoanalysis in America is no evidence of either a friendly attitude to the subject or a particularly broad dissemination or profound understanding of its teachings.

As proof of my first contention it strikes me that whereas all kinds of scientific and pseudo-scientific undertakings meet with ready and generous financial support in America, our psychoanalytic institutions have never been successful in getting any assistance.

Nor is it difficult to prove my second contention. Although America has several able analysts and at least one authority like Dr. A. A. Brill, contributions from this distant quarter are scanty and rarely throw new light upon the subject. Psychiatrists and neurologists make frequent use of psychoanalysis

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as a therapeutic method but in most cases they evince little interest in the theoretical problems of the science or in its social implications. Indeed, there is frequently to be found among American physicians and authors a very insufficient familiarity with psychoanalysis. They appear to be acquainted with little more than its name and some of its terms, but this does not prevent them from being very certain of their opinions. The same persons confuse psychoanalysis with other teachings which may have developed from it but are at present no longer compatible with it. Or else they create for themselves a kind of hodgepodge of psychoanalysis and other elements and boast of their doings as a sign of broadmindedness, while what they actually reveal thereby is lack of judgment.

Much of this state of affairs, which I am sorry to have to mention, is undoubtedly traceable to the general tendency in America to abbreviate studies and preparation and make practical use of them as quickly as possible. There is, moreover, an inclination to study a subject like psychoanalysis not from the original sources but from secondary, frequently inferior, expositions. It is inevitable that thoroughness should suffer from such a procedure.

It is to be hoped that studies such as Dr. Feigenbaum is publishing in his special number will greatly advance interest in psychoanalysis in America.

SIGM. FREUD.

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Introduction

The collection of studies offered here has for its object the presentation of selected topics dealing with modern psychopathology as a medical science, with specific methods of observation and treatment, specific problems and conclusions. These studies treat of subjects in two fields: the neuroses and the neurotic character-formations. The third major division of the subject matter of psychopathology, the psychoses, are not considered within the scope of this publication, since they are specific, readily recognizable, and of no practical concern to the non-psychiatrist. On the other hand, the neuroses and the neurotic character-formations are in the background, or even in the foreground, of many clinical syndromes, and, as such, come up daily in the practice of all physicians, therefore making a fair knowledge of their structure and dynamics essential to the thorough understanding of many pathological conditions.

Nevertheless, the study of these neuroses and neurotic formations is, unlike psychiatry, which is now on the curriculum of most medical schools, still outside of the pale of orthodox medicine. Of course, if the neuroses were infrequent disorders of negligible importance, their neglect by academic medicine would not constitute as grave a problem as it does. But, the neuroses actually do account for a very high percentage of all cases coming to the attention of the medical profession. They lurk behind innumerable disorders which, on the surface, appear to be physical. They have a way of cropping up in indisputably physical traumas or bacterial intrusions, such as the fracture of a bone or tuberculosis of the lungs. They even maintain their undermining activities in apparently healthy constitutions which as yet do not exhibit striking symptoms.

The first part of our collection is a symposium on neurasthenia which is representative of the group of *actual neuroses*. The subject of neurasthenia was chosen first, because the term is loosely used, and even abused, in medical diagnostics, and it is time to clear up our ideas on this subject and to come to

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some common understanding of its meaning. Secondly, because the syndromes which are nowadays called neurasthenic, furnish par excellence illustrations of the inter-action and inter-dependence of somatic and psychic factors, the study of which, on the basis of the libido-theory, may lead to a deeper understanding of the generally surmised ultimate somatic basis of neurotic phenomena.

Next comes a symposium on character pathology, which is a new, and to some of us, unexpected subject of medical study. A few words on malformations or diseases of character will, therefore, not be amiss. Study and therapy of psychoneuroses by the method of Freudian psychoanalysis succeeded in penetrating beyond the neurotic symptoms and tracking them to a foundation stratum, or character-base, representing the fixation of the whole personality upon very early and primitive libidinous experiences involving the surrounding parental environment, which gradually results in a rigid and automatically functioning system of reactions persisting from infancy into adult life. Such rigid, genetically infantile character-formations, which often pass as either "strong" or notably "weak" characters, may be in the way of elastic adjustment to changed environment of adult life and undermine the very foundations of health and happiness. It may be said in passing that the therapeutic disintegration of such rigidities of personality is one of the greatest triumphs of the psychoanalytic method.

Our characterological symposium completely disregards speculative-intuitive theories of Ludwig Klages and the like, and deals exclusively with studies based on observations of clinical syndromes in the manner and discipline of medical science. When so treated, pathological character-formations will fall in two classifications: (a) basic-developmental character-fixations, such as the anal-sadistic character-fixation; (b) clinical-symptomatic formations, such as the compulsive character, anxiety character, hysterical character, etc.

The last division of our group of papers deals with a sociologically important species of the neurotic character, namely the neurotic-criminal character. It is an illustration of the application of medical psychology to social problems of crime

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and delinquency. The term "criminal character" has been greatly abused. If justifiable, it is applicable only to a small group of criminals, whose criminalcy cannot be attributed to any physiological or psychological causes. In the light of extant knowledge, it seems plausible to assume that the majority of criminals is of a neurotic character. A most promising study in this field has lately been made by the psychoanalyst Franz Alexander and the criminal lawyer Hugo Staub of Berlin, in their book "Der Verbrecher und seine Richter" (The Criminal and His Judges). These studies throw new light on the psychological substrata of both the criminal and his judge, and also indicate a prospect of crime-therapy.

It is hoped that after these explanatory paragraphs, the reader who has not been in touch with developments in the field of psychopathology will be able to appreciate the relation that exists between the articles presented here.

In concluding, the editor wishes to express his gratitude to Dr. Victor Robinson for making the Psychopathology Number possible by his magnanimous invitation, and to the distinguished contributors of the issue for their admirable cooperation.

The editor feels also obliged to Mr. A. J. Storfer, Director of the "Internationaler Psychoanalytischer Verlag," Vienna, for encouragement and valuable suggestions; Mrs. Margaret Powers, Dr. A. Slutsky and Mr. Frederick H. Martens of New York, for their faithful translations; and, finally, to Mr. I. Gutmann and Mr. John W. Gassner, New York, for literary and editorial assistance.

DORIAN FEIGENBAUM.

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SYMPOSIUM ON NEURASTHENIA

From Beard to Freud

A Brief History of the Concept of Neurasthenia

By HENRY ALDEN BUNKER, JR., M.D.

It was in 1869 that Dr. George M. Beard, of New York, undertook to describe "a condition of the system that is, perhaps, more frequently than any other, in our time at least, the cause and effect of disease. I refer to neurasthenia, or exhaustion of the nervous system." And to Beard is generally assigned the credit of first recognizing and describing a supposedly more or less definite and unified clinical syndrome, to which he was the first at any rate to apply a specific label, even though a certain correlation and interrelationship among some of the symptoms included in this syndrome had undoubtedly long been noted; and indeed Beard himself, disclaiming originality except as regards the term neurasthenia itself, states in this earliest article of 1869 that "the morbid condition or state expressed by the term has long been recognized and to a certain degree understood, but the special name *neurasthenia* is now for the first time presented to the profession."

Let us glance, then, at Beard's earliest formulation of his concept of neurasthenia as a definite clinical syndrome; we shall find it rather inclusive: "If a patient complains of general malaise, debility of all the functions, poor appetite, abiding weakness in the back and spine, fugitive neuralgic pains, hysteria, insomnia, hypochondriasis, disinclination for consecutive mental labor, severe and weakening attacks of sick headache, and other analogous symptoms, and at the same time gives *no evidence of anemia or of any organic disease,* we have reason to suspect . . . that we are dealing with a typical case of neurasthenia." As to its causes, Beard lays down that "neurasthenia may result from any causes that exhaust the nervous system," which he further thought of, as an admitted speculation, as bringing about a dephosphorizing of the central nervous system; while "among the special exciting causes may

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be mentioned the pressure of bereavement, business and family cares, parturition and abortion, sexual excesses, abuse of stimulants and narcotics." As to its effects, "chronic neurasthenia may result in paraplegia, in general paralysis, in neuralgia, in uterine disturbances, in dyspepsia, in chorea, in hypochondriasis, in hysteria, and in actual insanity."

Some ten years later, in 1880, Beard published a volume entitled *A Practical Treatise on Nervous Exhaustion (Neurasthenia): Its Symptoms, Nature, Sequences and Treatment,* which he devoted to an exposition *in extenso,* and, it must be said, in a manner not free from sweeping generalization, of the condition which he speaks of in the preface as at once the most frequent, most interesting, and most neglected nervous disease of modern times—neurasthenia, or nervous exhaustion, "the centre and type of this family of functional nervous diseases," the neglect of which in the medical school curriculum and the indifference to them on the part of the medical profession Beard deplores in terms almost as cogent at a recent date as they were fifty years ago. In this volume, however, in which the characteristics of the condition are dealt with at such length, there occurs no concise definition of what is precisely meant by the term neurasthenia—as, indeed, it is the comment of a recent writer that the great majority of subsequent articles upon the subject contains no such definition.

For Beard, neurasthenia was a "many-sided and fluctuating" syndrome featured by a multiplicity of subjective symptoms, discoverable in large part only through a painstaking anamnesis, among which fatigue, exhaustion, "lack of nerve force," "nervous bankruptcy," held a cardinal place; attendant manifestations included an array of subjective complaints ranging from various ill-defined aches and pains to phobias and obsessions. In brief, not only was neurasthenia, in Beard's conception, "the centre and type of the family of functional nervous diseases;" it *was* functional nervous disease, was virtually synonymous with it, since scarcely any other sort of so-called functional nervous disorder, hardly even hysteria, was distinguished from it in Beard's formulation—nor, it might be added, in the minds of many later writers. It is at least to

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Beard's credit, at all events, that he called emphatic attention to the occurrence and the reality of symptoms of the sort which are now recognized as characteristic of one or another of the psychoneuroses; nor is it surprising that hostile criticism took at first the form of rejecting his conception as that of an artificially created disease of highly intangible character. On the other hand, as is almost too obvious to require mention, subsequent criticism, grounded in a fuller understanding of the nature and meaning of the clinical phenomena among which Beard groped, has found his original formulation far too inclusive, his conception of neurasthenia as a single clinical syndrome much too all-embracing.

Through the gradual recognition of this fact, owing to the differentiation, through the work of Janet and especially of Freud, of various clinical syndromes which cannot legitimately be placed under a single rubric, the term neurasthenia has eventually become narrowed to include only those cases in which fatigue, mental or physical or both, is the prominent symptom; it has become restricted to mean in general (to borrow the definition of Cobb) "a condition of nervous exhaustion, characterized by undue fatigue on slight exertion, either physical or mental, with which are associated symptoms of abnormal functioning, mainly referable to disorders of the vegetative nervous system, these symptoms being chiefly headache, gastro-intestinal disturbances, and subjective sensations of all kinds."

To Beard the question of etiology, the interpretation of the underlying cause or causes of neurasthenia, was of secondary importance, since, indeed, as we have seen, his primary concern was the collection of a miscellany of symptoms under one nosological rubric, the grouping of these manifestations into one disorder; and in fact he relegated the discussion of this aspect of the subject to a second volume, published in 1881, *American Nervousness: Its Causes and Consequences,* in which he designates modern civilization, "the one constant factor, the foundation of all these neuroses, wherever they exist," as the chief predisposing cause of neurasthenia, while as exciting causes he enumerates "functional excess of any kind, as of the brain,

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the spine, the digestive, the muscular, and the reproductive system."

Whatever the indifference which Beard's views first encountered, the subject of neurasthenia eventually gave rise to a most extensive literature, such that, for example, in 1894 Muller was able to compile a bibliography of fourteen pages. Since it would be entirely without profit, however, to attempt even the briefest resumé of this literature, it will suffice here to draw attention in passing to certain of the major modifications of Beard's original thesis which were introduced in the closing decades of the last century. Janet, for example, quoting the dictum of Moebius and of Dejerine that neurasthenia is the initial form from which other neuroses are derived as from a fountain head, split off compulsive and obsessional states under the designation *psychasthenia,* which he regarded as a psychoneurosis closely allied to neurasthenia and perhaps also to certain forms of paranoia. For Dejerine the true psychoneuroses embraced only hysteria and neurasthenia, the two conditions which alone claim a disorder of the emotions as their primary etiology, which alone are traceable to an emotional cause; of neurasthenia he believed that too great importance was commonly attached to fatigue and to exhaustion in the genesis of that disease, and that no state of neurasthenia was possible without "a peculiar antecedent psychological constitution" characterized in particular by strong affectivity; so that both Janet and Dejerine regarded neurasthenia as a psychoneurosis, a disorder of psychological genesis. Moebius, favoring a physical etiology, looked upon neurasthenia as a kind of chronic intoxication by fatigue substances, somewhat analogous to the effects of the prolonged abuse of alcohol. Kraepelin quoted this view with approval, but believed that there also occurred a so-called constitutional type of neurasthenia. On the other hand, it came to be realized, furthermore, that fatigue, the cardinal and almost pathognomonic symptom of "neurasthenia," is frequently not at all the relatively isolated symptom that it may appear to be but is often merely one feature of a syndrome of mental and physical symptoms arising as the outcome of a more or less profound maladjustment—that

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it may be the expression of emotional disturbance arising from the presence of unconscious mental conflict, and is, as such, diagnostic of such emotional disturbance rather than of any particular "disease" of which, whether hysteria or schizophrenia, the emotional disturbance is a part. In any event, it is evident that fatigue and undue fatiguability do not in themselves necessarily spell neurasthenia, a condition which is actually present in certainly fewer than one per cent, in Ernest Jones's estimate, of the cases commonly so diagnosed; and that it is only after a number of disorders—in which, it is true, fatigue may be prominent as a complaint—have been differentiated that we are left with a definite if rather infrequently occurring syndrome—consisting essentially of chronic fatigue, irritability, sense of pressure on the head, and gastro-intestinal symptoms—whose pathogenesis, as distinguished from that of the disorders just referred to, it is possible to discuss.

It was the effort to obtain a more or less uniform picture of neurasthenia, to divest the term of its vagueness and elasticity to the end that it might be given a more concrete significance from the standpoint both of nosology and of etiology, that led Freud, as early as 1894, to attempt to distinguish "from all that Beard included under the term neurasthenia . . . all those neurotic disturbances of which the symptoms, on the one hand, are more closely related to one another than to the typical symptoms of neurasthenia (headache, spinal irritation, and dyspepsia with flatulence and constipation), and, on the other hand, show in their etiology and their mechanism essential differences from typical neurasthenia." Having thus circumscribed the concept of true neurasthenia, Freud ultimately reached the empirical conclusion that this condition admits of only two *specific* etiological factors: excessive onanism and spontaneous emissions, which factors are alone and in themselves sufficient to produce neurasthenia; and, furthermore, that among concurrent and accessory causes none of the "ordinary" factors—mental excitement, physical exhaustion, acute illness, traumatic accidents, intellectual overwork, the stresses and strains of modern civilization, etc.—enters regularly or necessarily into the etiology of the neuroses or of neu-

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rasthenia, for although these every-day factors may function as precipitating causes, so that the added effect of such a factor may be required to cause the neurosis to become manifest, the pathological result does not vary in accordance with the nature of the supervening "ordinary" factor but is determined by the pre-existing specific cause. That this specific cause consists, in the case of neurasthenia, of excessive onanism has become a conviction so fixed in Freud's mind that, as he says, he has concluded that cases genuinely negative in this respect cannot be neurasthenia; although, as he adds, he has also encountered persons who showed the signs of a neurasthenic constitution without the presence of the etiology just mentioned, in whom, however, he was able to demonstrate that the sexual function had never developed to a normal degree—in these patients neurasthenia was potentially (or actually) present because a normal sex life had never really been possible.

Thus, in a word, neurasthenia may arise whenever a less adequate relief, a less adequate activity, takes the place of the adequate one, as, in fact, when masturbation or spontaneous emission replaces normal coitus; and since, at the same time, the external stimuli are so meagre, in the case of masturbation as compared with normal coitus, that phantasy must be chiefly drawn upon to supply the deficiency of external stimulus, it is intelligible that masturbation requires a greater consumption of psychic energy than the act of coitus, and that its excessive practice may readily result in the exhaustion of the supply of neuro-psychic energy.

Thus the passage from Beard to Freud has been marked by a re-orientation as radical as possible: notably, by a drastic restriction of the concept of neurasthenia as one which originally embraced a host of unrelated clinical manifestations, so that it covered practically the entire field, without distinction, of the so-called functional nervous disorders, the totality of the neuroses and psychoneuroses of present-day nomenclature, while the term neurasthenia itself was as devoid of any precise meaning as the word "nervousness" and might even be said to be practically synonymous with it; and by a replacing of this vague and elastic and too inclusive concept, largely at the

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hands of Freud, by one in which neurasthenia becomes a definite and sharply circumscribed syndrome, of distinctly infrequent rather than of extremely frequent occurrence: a syndrome placed by Freud among the *actual neuroses* rather than among the *psychoneuroses* in that it lacks, in his belief, a psychological background explainable by any form of psychological analysis, in that its casual roots lie in the present and the immediate past, rather than in the remote past, of the patient, and in that it represents a disturbance primarily of the physical rather than of the mental component of sexuality; a syndrome of which the specific etiology, as distinguished from the merely accessory and auxiliary causal factors, including heredity, so exclusively stressed in the past, consists of protracted and excessive onanism—a factor which, never absent, according to Freud, produces the result that the psychical energy of the patient is continuously subjected to undue tax to replace the excitation that normally should come from without.

It remains only to be remarked that from the critical consideration of neurasthenia—a syndrome of restricted significance and of relatively rare occurrence, and at the same time, in its pathogenesis, deficient in psychological interest—Freud turned to the studies of psychogenic disorders, the psychoneuroses, with special reference to hysteria, anxiety states and compulsive neurosis, which embody the preponderating part of his creative work.

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Is Neurasthenia an Organic Disease?

By I. S. Wechsler, M.D.

The title of this essay has been intentionally put in the form of a question. But lest it be misinterpreted as a challenge to psychopathology, it is necessary to define precisely the concept of neurasthenia and to inquire into what is meant by organic disease.

Without entering into a discussion of the historical development of the term, attention may be called to the fact that the concept has been variously employed to cover a multitude of clinical signs and symptoms. Most clinicians, not excepting the majority of neurologists or even psychiatrists, look upon neurasthenia as a very large, if vague, clinical entity into which may be put indiscriminately all sorts of neurotic manifestation which cannot be otherwise classified. For them, neurasthenia, like "nervous breakdown," is a facile designation of a congeries of symptoms. And so one finds hysterical, compulsive or obsessional, hypochondriacal, and a host of other symptoms, which have no relation to one another, grouped together for want of a better "label." There is no psychopathologic or other consistency in the term as thus used, but in this sense neurasthenia is a prevalent neurosis, or at least a very widespread syndrome.

Opposed to this view is the psychoanalytic concept which regards neurasthenia as a definite, but very limited, symptom-complex which occurs comparatively rarely in clinical practice. It will be recalled that Freud restricted the syndrome considerably, classed it among the *actual neuroses* and invoked for it the specific etiology of prolonged or excessive masturbation. He regarded it essentially as a chronic condition, characterized in the main by general want of energy, diminished or reduced vigor, proneness to fatigability, more particularly mental tiredness, by mild gastro-intestinal disturbances, occipital or generalized headache or tightness about the head, and by impotence or ejaculatio precox.

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Furthermore, the want of initiative and lack of capacity for prolonged exertion, Freud believed to be the result of actual injury done to the psychosexual apparatus by the inveterate masturbation. Because of the lack of adequate psychic preparation and opportunity for proper outlet onto a love object, such as occurs in normal sexual relations, the sexual energy is conceived of as being dammed back into the body itself through a short-circuting of the spinal reflex process. The result is an injury not only to the psychosexual apparatus but to the genital organs themselves. And in men, in whom the process of masturbation seems to be more complex though possibly less varied than in women, one does indeed find in chronic masturbators congested prostates, enlarged, soft and boggy seminal vesicles, and injected verumontana.

One may leave out for the moment the undoubted fact that neurasthenia may occur in patients who have never masturbated or have long since given up the practice, though it must be admitted that even in those cases ejaculatio precox or impotence are early manifestations and that normal sexual life never really was possible. We shall also disregard the moot question to what extent and in what form neurasthenia occurs in women.

Leaving out of consideration the depression and other mood and affect changes which the neurasthenic often complains of, the "memory" defects, lack of power concentration and the secondarily elaborated symptoms, such as anxiety and even true hysterical manifestations, one meets with not a few actual bypochondriacal symptoms and quite a number of others which are commonly regarded as "organic."

Among the last may be mentioned weakness of the ocular muscles or asthenopia, spots before the eyes, tremulousness or actual tremor, sallow complexion, cold hands and feet, perspiration at night, "billiousness," constipation, labile pulse, low blood pressure, orthostatic tachcardia, extra systoles, lively pulsation of the abdominal aorta, and so-called neurasthenia cordis or that erroneously designated clinical syndrome known as neurocirculatory asthenia. And to revert once more to the sexual travesty of the neurasthenic, one may mention the

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frequent noctural emissions and diurinal pollutions, the persistent but futile erections at night, the spermatorrhea on slight stimulation by day and the occasional ejaculation while straining at stool, all of which are followed by a feeling of exhaustion and prolonged backache and occipital headache.

Finally, it is worth noting that the neurasthic is to a great extent narcissistic, and in not a few instances there is also a considerable schizoid background. In fact, one may actually speak of a definite neurasthenic character. Taking these facts into consideration and the further evidence that ejaculatio precox or even impotence may set in early in life, even before masturbation has had the chance of initiating the vicious circle, thus frustrating normal sexual life from the very beginning, one must assume a constitutional psychosexual defect. This makes it more than probable that heredity plays a very great role in neurasthenia and possibly has a preponderating influence in its development.

All the facts thus far marshaled might very well be interpreted to mean that neurasthenia is an organic disease in the sense that its manifestations are the result of definite, though at present undemonstrable, pathologic changes. Such an interpretation at once differentiates the organic changes which are assumed to have etiologic significance from other organic changes which may be the result of psychogenic processes.

The distinction is of extreme importance, because if the mental and physical manifestations constituting the syndrome of neurasthenia are the result of definite constitutional changes they differ to such an extent from all those found in the other psychoneuroses as to warrant the exclusion of the syndrome from the group of psychogenic diseases. To some extent psychoanalysis makes this concession, but it does not stress emphatically the distinction, because, at least from a theoretic point of view, the ultimate line of demarcation between the psyche and the soma is coming to be ragarded by many psychoanalysts as very vague if not actually non-existent.

Before pursuing this argument any further it may be pointed out that a number of other facts bear upon the question of the organicity of neurasthenia. Of less weighty, though

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by no means negligible, significance may be mentioned by way of analogy the clinical evidence furnished by many definitely organic diseases.

It is well known, for instance, that incipient pulmonary tuberculosis may for a long time give rise to a series of symptoms commonly regarded as neurasthenic. To some extent this may be true of the early phases of tumor of the brain or cerebral arteriosclerosis; and it certainly is a fact that many a case of incipient general paresis for a long time is erroneously looked upon as one of neurasthenia. Chronic lead poisoning, too, should be mentioned in this connection and passibly concussion of the brain.

For the purposes of the discussion it does not matter that in none of those cases is there a history which traces back a great many years or that masturbation with its assumed injury to the psychosexual apparatus is not the primary cause. What is important is that a syndrome which cannot easily be distinguished clinically from "true" neurasthenia can occur on the basis of definite pathologic changes in the nervous system, and therefore raises the question, which must not be lightly dismissed as a *non-sequitur,* whether every case of neurasthenia is not *a fortiori* and organic disease. If to this argument is added the very important fact that heredity, than which nothing more "organic" can be conceived of, plays an important role in the etiology of neurasthenia, the probability of its being an organic disease is further strengthened.

But there is yet another bit of evidence to be considered. When one views the array of symptoms grouped as neurasthenia one notices a remarkable resemblance between them and those observed in disease of the suprarenal glands. I refer particularly to the mild or incipient phases of Addison's disease. That well-known clinical syndrome is characterized by easy fatigability, apathy, depression, low blood pressure, loss of appetite, insomnia, diarrhea, asthenia, and loss of weight. Ultimately, of course, there is bronzing of the skin and aggravation of all symptoms to the point of complete exhaustion and a fatal issue. If, however, one can conceive of a dysfunction of the adrenals, of a hypoadrenemia, of an impairment of the

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functions of the adrenals or the nerves supplying them, not necessarily of a destruction of the glands which results in true Addison's disease, one can readily see how a clinical picture commonly regarded as neurasthenia might be the result.

To some extent dysfunction of the pituitary gland, in which impotence, loss of libido, low blood pressure and asthenia may occur, or hypofunction of the thyroid or gonads, might also give rise to a "neurasthenic" clinical syndrome. One may, in addition, mention the emotional changes which are commonly observed in disease of the ductless glands. It is granted, of course, that much of this is speculative, that a good deal of clinical endocrinology borders on fiction, that many of the explanations so uncritically offered as to the relationship of the glands of internal secretion to character and temperament are worse than naive; but one cannot therefore ignore the undoubted significance of the role the endocrines actually play in the function of the body in general and the nervous system in particular. There is too much anatomical (including embryological) psysiological and pharmacological evidence of the hormonal and neutral relationship existing between the nervous and ductless glandular systems for us to ignore their clinical implications.

In a paper on The Psychoneuroses and Internal Secretions (Neurological Bulletin, May 1919), I recorded a number of cases which illustrated the probable relations of disturbances in the function of the endocrines to the neuroses. Without repeating what has been said there or multiplying instances, I should like to report briefly the following case:

S. L., a clerk, forty-two years of age, complained of impotence, general weakness, lack of energy, occasional headache, and weakness of the eyes. He had masturbated excessively from early youth up to the time of his marriage at the age of twen-seven and irregularly all through his married life up to date. He had no intercourse prior to marriage, and not very successfully subsequently. He suffered from ejaculatio precox at all times and, in addition, practised coitus interruptus. His wife, who is an ardent woman, always felt frustrated, chided him for his lack of virility, or refused her favors altogether. Their married life has been a series of squabbles on that account, and he suspects her of relations with other men. Being a meek, not very sociable, home person she constantly bullied him.

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For the past year or longer he became totally impotent and his eyes, especially the left, became "weak." He has been treated by physicians for a great many years, the last one who referred him to me with the diagnosis of neurasthenia having had him under his care for several years.

I agreed from the history and general behavior of the patient that the picture was almost classical of neurasthenia, but neurological examination showed partial optic atrophy, bitemporal hemianopsia, more marked on the left, scanty facial hair, no axillary or bodily hair, feminine pubic hair line, marked panniculus and the presence of supraclavicular pads of fat. Despite the absence of other signs and symptoms referable to the pituitary gland I made a diagnosis of tumor of the hypophysis, which a tremendously large sella turcica quickly verified. Now the question arises whether the definite neurasthenic syndrome which the patient suffered from for years was due to endocrine deficiency (gonado-pituitary) of which the present clinical picture is an end result, or whether a neurasthenic happened by chance to develop a pituitary tumor. There is evidence to believe that the former is the case.

It may be conceded that our present knowledge, by which one might test the validity of the views thus far expressed, is insufficient; but enough facts have been accumulated to warrant clarification of many of the concepts regarding neurasthenia. To begin with, if one accepts the psychopathologic, more particularly the psychoanalytic, theory of the neuroses, the term neurasthenia may justly be limited, as Freud has done, to a definite syndrome, the genesis of which differs to a great extent from all other symptom-complexes which are commonly grouped under the psychoneuroses. That is, if one excepts those symptoms associated with neurasthenia which are generally regarded as being secondarily elaborated, we are left with a syndrome whose roots trace deeper into the soma than the psyche. This will justify the Freudian designation of *actual neurosis*. Further, acceptance of this view not only forbids the inclusion of signs and symptoms of complex psychogenesis but lends consistence to the clinical picture and removes the confusion which has existed hitherto because of the indiscriminate grouping of symptoms. Finally, it explains why there is such wide discrepancy in the statements as to the relative frequency of neurasthenia. Obviously if one adheres to the older notions, the neurosis is very prevalent; if one

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accepts the more restricted psychoanalytic view, the syndrome is comparatively uncommon.

Accepting the more precise definition of the concept of neurasthenia, we may revert to the question of its organicity. As has been shown above, there is a great deal of inferential evidence to bear on the question. At best the evidence is derived from reasoning by analogy. Certainly there is no direct clinical or pathological proof. But even so, what with the psychoalalytic assumption of a definite trauma to the sexual apparatus, the probable hereditary background, the peculiar neurasthenic character, the chromicity and resistance to treatment, and the vague but numerous signs and symptoms referring to somatic or bodily dysfunction, the suspicion is justified that "true" neurasthenia is an organic disease in the sense that as yet undemonstrable pathologic changes are the cause of the symptom and not the result of psychogenic processes. How much truth there is in such a view only further studies will determine.

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Diagnostic Errors in Neurasthenia

By A. A. Brill, Ph.B., M.D.

As a medical student I was much impressed by the concept of so-called neurasthenia. I listened with rapt attention to the learned professors when they enumerated the multiferous and variegated symptoms of neurasthenia. The clinic on neurasthenia given by Dr. M. Allen Starr was most fascinating to me. In contrast to the psychotics, the neurasthenics inspired one with a sympathetic interest; they spoke feelingly about their symptoms and apparently wanted to be helped.

What impressed me most was the ease with which such cases could be diagnosed and treated. When I first heard a patient enumerate the numerous ills from which he suffered I became somewhat confused, for there was not a single part of the body which did not produce its quota of peculiar feelings, aches and pains. Being only a student I wondered how one will remember all these symptoms for the examination.

But I felt better when one of the teachers glibly remarked that whatever puzzles you on the skin you can safely diagnose as eczema and whatever you cannot diagnose on a physical basis you can safely call neurasthenia. That made it quite easy, for here we had a disease that embraced almost everything; it comprised almost as many symptoms as one found in all the other diseases put together. It was truly a unique malady worthy of its name "American Disease" given to it by European neurologists. As a medical student I was particularly pleased with it because it was labor saving and mentally economical. Years later when I was an assistant in Professor Starr's clinic, the chief of clinic asked me one day to prepare patients for a clinic on neurasthenia, and when I asked what type of cases he desired he specified by saying that I should get any cases that have not too many delusions and hallucinations. I felt that he was very broadminded on the subject of neurasthenia, perhaps a bit too broad, for at that time I had already known something about nervous and mental diseases.

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One could not, however, take lightly our Chief of Clinic's concept of neurasthenia; in slightly exaggerated words he voiced the ideas of most neurologists and psychiatrists. From the numerous authorities at my disposal I selected two to show the prevailing views: "Neurasthenia is a general neurosis—i.e., one affecting the whole nervous system; and since mental disturbances play an important role, it may be called "neuropsychosis." [1]

The second quotation is taken from an American standard work on nervous and mental diseases. "The symptoms of neurasthenia are extremely numerous. Some are *essential,* most are *adventitious.* Charcot considered *headache, backache, gastro-intestinal atony, neuromuscular weakness, cerebral depression, mental irritability, and insomnia* as the fundamental symptoms of the disorder—the true stigmata of the neurosis." [2] These authors then enumerate a host of additional symptoms under such headings as motor disorders, sensory disturbances, visual disturbances, disorders of hearing, smell and taste, gastro-intestinal disorders, circulatory disorders, genital disorders, and mental disturbances. It would take up too much space to enumerate here all the complaints headed under neurasthenia. After reading about this malady in a dozen texts one becomes more or less bewildered, if not confused with the whole subject of nervous and mental diseases. No wonder then that Professor Forel called Neurasthenia the "garbage can" of medicine.

Up to about twenty-five years ago this concept of neurasthenia was firmly accepted by almost all medical practitioners, and most of the old timers still adhere to it. But as time advanced a number of investigators became doubtful about the extent and connotation of the symptoms, and numerous attempts were made not only to restrict it and define it more accurately, but even to reject it altogether. There is no need of entering here into the various stages of these evolutions; elsewhere in this volume you will be shown how the French

[1] Von Krafft-Ebing: Text Book of Insanity, p. 446, translated by C. G. Chaddock. Davis Co., 1905.

[2] Church & Peterson: Nervous and Mental Diseases, p. 584, 7th Edition, W. B. Saunders, 1911.

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school took a big slice of the neurasthenic symptomatology and labeled it "psychasthenia" while only recently Forel's views of over twenty years ago were echoed in England by E. F. Buzzard,[3] who stated: "Taken as a whole, we doctors carry on our trade in an honorable fashion and are imbued with a genuine desire to cheat neither our clients nor ourselves; but it can hardly be denied that the label of neurasthenia is often used in order to evade a duty—the duty imposed on us to declare a correct diagnosis. Whether such action should be regarded as a crime or only as a pardonable misdemeanor is a moral question, I do not propose to discuss; the object of my discourse is to show that it is not a good business. The label of neurasthenia is a bad business proposition for two reasons. In the first place it conveys little or no pathological meaning to your mind; in the second place it gives your patient the impression that he is suffering from a disease the cause, course and outcome of which are equally mysterious to both of you."[4] Dr. Buzzard only reiterates what had already been said many years ago by many others and yet I consider his remarks very opportune. For strange as it may seem in spite of all that was said and done about the inadequacy of the name, as well as the concept itself, neurasthenia is still very popular with the medical profession.

Since I became a Freudian (1907) the existence of neurasthenia as an entity became more and more doubtful to me. For be it remembered that it was Professor Freud who brought order into the chaos of the neuroses and it is due altogether to his investigations and classifications of the neuroses that we are now able to evaluate the so-called neurasthenic concept. Following the publication of the classical studies on the psychic mechanisms of the phenomena of hysteria (1893) by Breuer and Freud, and the dilatation of these ideas in their well known revolutionary work "Studien über Hysterie,"[5] Freud in 1895 first made the attempt to separate the anxiety states or anxiety neurosis from neurasthenia proper and thus to limit

[3] "The Dumping Ground of Neurasthenia," Lancet, January 4th.

[4] Quoted from the A. M. A. Journal of February 8, 1930.

[5] Translated by Brill under the title "Hysteria and other Psychoneuroses," Monograph Series.

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the concept of the latter. He justly stated that nothing worth while can be said of neurasthenia so long as this term is used in Beard's sense, and that neuropathology can make headway only by separating from active neurasthenia those symptoms of anxiety which are more firmly connected with one another, in their conjoint appearance, etiology, and mechanisms. To be more precise, he separated neurasthenia from not only the anxiety neurosis, but also from a number of other symptom complexes which did not belong to it. Freud then restricted neurasthenia to the following typical symptoms: headaches, spinal irritation, dyspepsia with flatulence and constipation. As pseudo-neurasthenia he designates the numerous symptoms which are determined by organic disturbances such as reflex disturbances of nasal origin, neurotic disturbances resulting from various cachexias and arterio-sclerosis, and from the early stages of organic diseases such as tuberculosis, paresis, and other psychoses.

To be sure the symptom complex of anxiety or pathological anxiety frequently observed in many neurotic and psychotic disturbances was first described by E. Hecker in 1893. Freud, however, studied the problem independently and went deeper into the subject; he not only described the equivalent or rudimentary attacks of anxiety, but also stressed the fact that all morbid anxiety originated on a sexual basis. Briefly, Freud came to this conclusion for three reasons. First, because all accompanying physical manifestations of pathological anxiety, such as cardio-vascular and respiratory disturbances, are nothing but exaggerations of normal fear, secondly, the disproportion between the insignificant cause and the resulting chronic symptoms simply shows that the former is only an *agent provocateur* and not the adequate cause of the anxiety neurosis, and thirdly, the real etiology of morbid anxiety is not to be found in the pathological enhancement of the nerve centres nor in the pathology of the internal organs which at best are selected only as paths of discharge for the anxiety.

Anxiety neurosis, according to Freud, occurs as a result of injurious influences from the sexual life; these traumas are found either alone or as reinforcement to other banal injuries.

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If a psycho-physiological sexual stimulus finds no discharge through physical or mental paths, as for example in *coitus interruptus,* an anxiety neurosis may result; in other words, morbid anxiety may arise as a result of repressed libido, which was changed into anxiety in a manner similar to a physical transformation of energy. With this view Jones disagreed on the basis of biological theory of the instinct. He claimed that "instincts are specific modes of reacting to the environment that have been evolved as such through ages of attempts at adaptation and, that although their manifestations can, in the higher animals, be extensively modified, deflected and also fused with those of other instincts, this is a different thing from a radical transformation of one into another."[6] Jones maintains that morbid anxiety is no more than a perverted manifestation of the fear instinct, that is, instead of pathological anxiety one can assume that it is a case of extremely strong normal fear. Lately, Freud accepted this view.[7]

Without going any deeper into the problems of anxiety which is briefly discussed here in order to show its relation to neurasthenia, I will merely state that after narrowing the concept of neurasthenia by creating, so to speak, the entity of anxiety neurosis most of which was later changed to anxiety hysteria[8] there remained on the one hand hysteria, which was always universally recognized as such, and on the other hand the obsessive phenomena—phobias, doubts, obsessions—which were grouped under the heading of compulsion neurosis. So that, according to Freud, neurasthenia, anxiety neurosis, hysteria, and compulsion neurosis, are definite and rather clear-cut neurotic entities which can be readily observed and classified.

Thus the neurasthenia entity though very much narrowed, continued to play a part as one of the actual neuroses, and whenever I encountered patients presenting symptoms of headache, or pressure in the head, spinal irritation, dyspepsia

[6] Ernest Jones: The Psychopathology of Anxiety, British Journal of Medical Psychology, Vol. IX., Part 1, 1929.

[7] "Hemmung, Symptom, und Angst," 1926.

[8] Cf. Brill: Psychoanalysis Theories and Application, p. 135, W. B. Saunders, 1922.

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with flatulence and constipation, I diagnosed them as neurasthenics and expected to find Freud's etiological factors, viz., a replacement of an adequate (action) discharge, by a less adequate one (normal coitus by masturbation or spontaneous pollutions). I say "whenever I encountered patients presenting the symptoms, etc.," but after looking through my records very carefully I cannot find a single case that I could diagnose as a typical neurasthenia. To be sure I found numerous cases diagnosed as neurasthenics which were referred to me by physicians, but after thorough examination there was not one who was just a neurasthenic in the Freudian or in any other sense. To illustrate what I mean let me cite a few cases.

Case 1—Mrs. C., a woman of 49 showed all the Freudian symptoms of neurasthenia enumerated above, but in addition she also showed larval anxiety attacks of a vague nature and numerous mild compulsive phenomena. She was sent to me as a neurasthenic and at first sight I diagnosed her as one but after a few sessions I had to change my diagnosis to "mixed neuroses" (anxiety hysteria and compulsive neurosis). The etiological factors too corresponded to the revised diagnosis.

Case 2—Mr. C., 32, married, was referred to me as a neurasthenic, and to my question about his ailment he presented me the paper from which I am copying the following symptoms:

1. Cannot concentrate; heaviness on right side of head.
2. When thinking impressions come from right side of head.
3. Empty head; when talking do not get strong impressions.
4. When reading must read small paragraph twice to get idea; cannot get strong impressions; cannot think strongly.
5. Business depressions for past two years.
6. Family depressions for past two years.
7. No real penis erection for past two years.
8. Left side of head without feeling; left temple no pulse.
9. Left eye acting nervously and not in unison with left eye; always see with right eye nose; weakness of right smaller than right and same reacts on eyelid.
10. Pains on right side of head very often also on skull.
11. Strong drawing on base of nose; and above eyes.
12. Facial feeling not strong as formerly.
13. Chest very light and not strong as formerly.

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14. When inhaling left chest does not react with right side of chest.
15. Breathing with left side of nose so freely cannot consume so much air.
16. Arm and hand grips not strong as formerly.
17. Voice at times base other times soft.
18. Pains in center of vertebrae.
19. Feel weakness left center of chest.
20. Feel light on left side of body.
21. Mind always on left side of body.
22. Moving liquid between penis and rectum.
23. Believe some in body lowered because feel everything in head lowered.
24. Cannot crack any bones on left side.
25. Left side of neck pains and weak.
26. Feel bones crack in back lower center of head.
27. Head weak.
28. Never tired, cannot get restful sleep, get up light.
29. Nerves exhausted, cannot make mind up where to go for business or pleasure.
30. Gripping of nerves often on right jaw.
31. Nervous at times in body and head.
32. When talking feel not talking as strongly as before and doing so with assistance of right lung only.
33. Always stammered and felt I was drawing strongly on my lungs. Had arguments always with customers and one day felt sharp pain on left side of lung and same is annoying to me now.
34. For last year felt left shoulder lower than right.
35. Feel left jaw weaker than right.
36. No pep, energy, ambition or happiness which I desire, nor feelings.
37. Feel always heaviness on both eye bases.
38. When coughing or clearing throat feelings come from right only and feel strongness only on right lung.
39. Feel like bubbles in hair in back of head.
40. Felt sleepy during day for past half year.
41. Pressing of vein. (Refers to a vein on right side of head which he thinks he rubbed out with his hand).
42. Burn on back of left side of neck.
43. Is it likely that I broke a blood vessel in the head?
44. I'm light on the legs and the arms.
45. If I am thinking, the picture slips from middle of head to the right.

This patient corresponds to the classical neurasthenics and on superficial examination this diagnosis was made by at least three or four physicians. Deeper investigation showed that he was mild schizoid-manic type who had three similar attacks within the last eleven years of his life. The depressive affect

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colored the whole picture and the subsequent course of the disease corroborated the diagnosis.

I could cite a great number of similar neurasthenic cases who turned out to be mild depressions, beginning schizophrenics, compulsive neurotics, and hysterics; now and then the symptoms also depended on a slowly developing organic disturbance which was not properly diagnosed. For many years I had my doubts about the existence of such entity as neurasthenia, for whenever I studied cases so diagnosed I soon found that they did not fit snugly into this classification or that they belonged to some other entity. Of the many who more or less share my views of this problem I shall quote Professor Bleuler, who speaking of the neurasthenic syndrome, states that *"over-exertion and exhaustion certainly are only rarely causes of neuroses, and never of psychoses.*[9] Professor Bleuler thus objects to the name neurasthenia as not expressing the true situation, and also states that "what usually produces the so-called neurasthenia are affective difficulties." [10] But affective difficulties are at the basis of those conflicts which produce the psychoneuroses. Bleuler would call all neurasthenias pseudo-neurasthenias if it were not too long a name.

To sum up I would say that neurasthenia as it is understood by the average physician hardly ever exists, for the symptoms that this term is supposed to connote can only rarely, if ever, be produced by nervous exhaustion and that only on a physical basis. Most cases of such actual neurasthenia belong to schizophrenia, cyclothymic depressions, beginning paresis, latent phthisis, or other organic affections; and even if we restrict the term to the symptoms left in Freud's classification of the neuroses, I, speaking for myself, am never able to diagnose neurasthenia. Neurasthenia was spuriously conceived and hence never existed in Beard's sense. Like the term psychasthenia it serves as a cover for a multitude of falsities begotten of ignorance and laziness.

[9] "Textbook of Psychiatry," p. 556, translated by A. A. Brill, The MacMillan Co., 1923.

[10] l. c. p. 556.

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The Hypothesis of Organ-Libido

By Otto Fenichel, M.D.

The hypothesis of the "organ-libido" was advanced by Freud, and was, in particular, developed and made to bear fruit by Ferenczi. And it is with the assistance of this hypothesis that psychoanalysis endeavors to fathom the so-called "psycho-physical frontiers," i. e., the normal physical phenomena which accompany conflicts of the psychic apparatus and their pathological caricatures—conversional hysteria on the one hand, and actual neuroses and organ-neuroses on the other. The hypothesis of the organ-libido was achieved empirically. Nowadays it is employed by empirical research, and it must rely for its further development and eventual correction on empiricism alone. This purely empirical foundation, however, is in danger of being overlooked in a systematic presentation of the hypothesis, because of its apodictic-logical character. In justification it may be said that a systematic presentation of the kind relieves the reader of the task of once more covering ground already explored without a guide, and supplies him with an at least more or less established basis for his further investigation of this still decidedly obscure territory.

What is the "libido?" With Freud one may define it as energy of the sexual impulse, that is, its quantitative moment. We take for granted that every human being has a certain sum total of "power of sexual impulse," hence libido, at his disposal. It is true that this sum total can be enhanced or diminished from extraneous somatic sources (inner secretions, puberty, climacterium, pharmacology), but otherwise it is changeless in its totality. Whoever expends his libido all too greatly at one point, has all too little left for other points. One must not, of course, interpret this to mean, crudely, that a human being can only either practice sexual intercourse or sublimate himself or herself—the realm of the "sexual urge," whose boundaries have been extended by psychoanalysis, is decidedly too manifold and complicated to let us do so. Yet there remain sufficient phenomena which we can fully explain, and the

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"libido-enonomic" description of a psychic occurrence—in spite of the unfortunate circumstance that we are unable to measure psychic recognition—remains one of the three fundamental tasks of theoretical psychoanalysis, the so-called "metapsychological" presentation of the occurrence in question.

Bodily processes, with regard to which we must also try to form as clear as possible a picture, must be most intimately connected with changes in the distribution of the libido. Libido is energy of sex-urge—and the life of the urges is, after all, a "borderground" which may be regarded, now from the psychological, and, again, from the bio-physical side. Regarded from the first viewpoint the urge appears as an energy-endowed impulse toward a definite action, the objective of the urge, which goes hand in hand with the experience of its satisfaction. From the second point of view we have an "instinct source," a bodily change which acts as a provocative on the psychic, and its objective removal of this provocative change and the tension it has called forth.

What bodily alterations then, are we to take for granted in the case of the sexual urge? What tension is generated by the instinctual urge and disappears in the organism? When Freud proved the similarity between sexual excitation and intoxication in all their details, he was in entire accordance with physiology, which has recognized the *inner secretions* as fundamental where sexuality is concerned. That is, physiology holds that the source of the sexual urge is in the sex-hormones or sex-substances which circulate in the blood and chemically call forth noticeable changes, especially in the genitals. We need not here concern ourselves further with questions of sexual physiology, such as the specific nature and place of origin of the sex hormones (the inner-secretionary participation of the germinal glands, relation to other glands, such as the thyroid gland, the pituitary gland, etc.). The crude conception of sexual substances which chemically influence the genitals, and thereby throw off instinctual drives for the psychical life, is sufficient for our needs. The refining of these rough-hewn conceptions, and, in the last analysis, the chemical presentation of the sex substances, is the as yet missing biological founda-

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tion upon which the entire libido theory of psychoanalysis will some day have to be erected.

And now we will go a step further; psychoanalysis teaches us that sexual instructual urges proceed not alone from the genitals, but from other parts of the body as well, the so-called "erogenous zones." This compels the acceptance of the consequence that the sex-substances are not alone collected and active at the genitals, but that it must be possible to find them at all erogenous places. They must be removable in the same degree, so to say, as a regression from genital eroticism to anal eroticism is psychologically possible according to the findings of psychoanalysis; something which is well in accordance with the acceptance of the idea of transportation by way of the blood-stream.

Hence we must take for granted that sex substances are present everywhere, but that they are unequally distributed, and that the distribution may vary according to the physical or psychical circumstances. So if we now declare that the organs vary in their cathexis (investment of libidinous energy) this is no more, in first instance, than a somewhat incorrect way of saying: the organs are provided with sex substance in varying quantity, so that various powerful libidinous excitements are radiated by them. There are both objective and subjective signs of this—and one of our most essential problems is the clarifying of the fact that these objective and subjective signs seldom agree, and that in most cases only the ones or the others can be proven. Objective: the genital in "a state of excitation" undergoes a physiological change in a definite manner. It has an increased turgescence, and reveals redness and inflation, that is to say, inflammatory phenomena. Ferenczi has proved in detail, that in other organs as well, owing to the enhancement of their "libidinal cathexis" the identical changes might occur (for example, in the case of hysteria), and in such cases speaks of a *genitalization* of the organs in question. It is true that the circumstances compel us to take for granted that such objective signs of the libidinal cathexis of the organs are only visible under certain conditions, and not under others. We will later ask why quantitative or qualitative circumstances

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are determining in this case. Subjective: Here we had best make the enigma of hypochondria our point of departure, an enigma which Freud solves with the following assumptions: the organs that radiate hypochondriac sensations are *actually* altered, even though physiological investigation cannot prove that any such alteration occurs. For, as a matter of fact, they have an enhanced cathexis, which in the psychical sphere makes itself noticeable as disagreeable tension. What in very first instance argues in favor of this is the change in the hypochondriac's psychic attitude in the sense of narcissism, i.e., the fact that his libidinous interest in persons of the external world decreases in a parallel degree with the increase of his hypochondria. We take for granted that ordinarily the libido directed upon the external world "is stowed away in the organs" (a discussion of this conception will follow later), and there produces a "damming up of libido." Freud advances a similar theory with regard to "actual neuroses," the anxiety neuroses and neurasthenia, i.e., he argues that anxiety and neurasthenic troubles appear after injury is done sexual satisfaction, when the orgasm proves to be abortive (frustrate excitation). He imagines that the libido quantities (the quantities of sex substance) which are not carried off in an adequate orgasm, remain bodily in and act toxically upon the organs. The investigation of all these circumstances, the variabilities of the libido content of the organs, would supply the theme for that physiology of pleasure demanded by Ferenczi as a supplement to more usual physiological research.

What is the relation of "erogeneity"—i.e., the accumulation of sexual substance at fixed bodily zones, with their consequent urges that act on the psychical life, and which eventually manifest themselves in the already mentioned objective signs of irritated genitals—to the symptoms of the "damming up of the libido," which confront us in the case of the actual neuroses, especially in hypochandria? Can we take for granted that only quantitative differences exist between both phenomena? Can we believe that a certain degree of cathexis calls forth psychosexual excitation, and that a greater allowance produces a "jam," a psychically unpleasurable tension, so that—in the case

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of actual neuroses external, and in that of hypochandria perhaps a psychogenetic-internal obstruction of passage is *solely* responsible for the difference?

We must now take into account a complication which we already introduced into our subject when we said of the hypochondriac, that cathexis in his case goes from objects over to the organs, hence that the libido is withdrawn from the external world to his own organs. Herewith we left behind our "pleasure-psysiological" description, and began one purely psychological. So long as we think in a purely physiological-material manner, so long as we really mean "sex substance" when we say libido, then only a shift from the genitals to the other organs comes into consideration, but not one by individuals of the external world, who, of course, cannot well be carriers of the sexual substance of the subject. And we begin to divine: that the purely physiological procedure may be the same in hysteria (and similar processes, such as extragenital perversions, etc.) as in hypochondria (and similar processes, such as the actual neuroses, psychotic sensations of the body). The sexual substances are genitally less concentrated, too much has piled up in the organs. The *difference* between the two processes, the decision as to whether erogeneity or "damming-up" develops, cannot depend *solely* on the quantity of "dammed-up" sexual substances. It cannot depend *solely* on whether (in perversion or in the hysterical symptom) removal of the sexual substance, which has accumulated in the organs, and, directing it towards emotional activity, is or is not possible, but on a psychological factor which, perhaps, decides with regard to this very possibility of removal and which we must now investigate.

Even in the stimulation of object-love tensive sexual substances accumulate at the genitals and the erogenous zones (in the case of perversion or hysteria almost exclusively at the erogenous zones), so that the organs, in one sense, have their libidinal cathexis. In the narcissistic state of hypochondria the same thing applies to the organs. Provisionally expressed, we may therefore say that it must make a tremendous difference whether the organs are stocked with "objective libido" or with

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"narcissistic libido," i.e., with "ego libido." And we must ask what such a qualitative difference between the libidos, the psychic sexual instinctual energy, really is supposed to represent.

In the first instance, we might say, "objects" are "libido-stocked;" in the second instance this is not the case. Hence what are we to understand by the term "libido-stocked?" Undoubtedly something that no longer has any direct connection with the bodily distribution of the sexual substances. Yet, naturally, also something that no longer has any connection with the objective personality of the love object, but with an intrapsychical occurrence in the subject of affection. If A falls in love with B, then, after all, this process does not happen in or to B, but solely in A, who begins to feel, think and act in a different way with regard to B. What then is "stocked" or "occupied?" The sum total of all the ideas that A has about B, we might say his *intrapsychic object-representation.* It is equipped with quite special powers, i.e., it has special masses of psychic energy placed at its disposal. The sexual tension conditioned by the "libidinous," i.e., sexual-substance, stocking of the genitals or the erogenous zones, now pushes on to impulsive acts with the person whose representation is intrapsychically absorbed owing to cathexis. Now if, in the event of a "regression to narcissism," the cathexis is once more withdrawn from this "object-representative" to whom, then, does it flow? Even its own body, once upon a time, was an "external world" for the psyche, even though it might be a bit of external world of quite a special kind, whose recognition first led to the differentiation between the self and the external world, and thereby to the creation of the "ego"—something whose discussion, however, does not lie within the scope of the present article. The body and its organs, too, are represented intrapsychically by conceptive and sensatory dates and their summarization (and much might be said respecting the significance of these representations, of the "body-posture" and the "body-ego" for the psychic life in general). Hence there also exists *intrapsychic organ-representation.* And hence in the case of narcissism, there occurs a transition of the cathexes—not as

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we formerly used to say, generally speaking, from the object to the ego, but, more exactly, from the object-representations to the organ-representations—and the organ-representations, for their part, can call forth chemical or nervose-physical (sexual substance) changes with regard to the organs.

It seems, therefore, as though it were not the same whether sex substances accumulated in the organs in the case of intrapsychic "stocking" of the object-representations (hysteria, perversion-normality), or in intrapsychic "stocking" of the organ-representations (hypochondria-psychosis). Between the two types we will probably find the actual neuroses, neurasthenia, the anxiety neurosis and the "organ-neuroses." The former, as we have already mentioned, must be conceived, according to Freud, as bodily toxic consequences of the "jammed" orgasms (dammed up sometimes because of external, but probably more often as a result of inner psychogenous reasons) of unremoved sex substances. At the same time one can imagine that such an orgasm-"jam" appears more easily and with greater frequency when there already exists a certain tendency toward an "intrapsychic cathexis of the organ representations"—and probably there are also fluent transitions between these forms of neuroses and the out and out narcissistic hypochondria. And among those neuroses generally known as "organ-neuroses" will be found forms more resembling hysteria and hypochondria, i.e. conversional hysterias, which manifest themselves in one organ only; and which are subject to all the laws of hysteria, hence forms whose symptoms have a special unconscious infantile-sexual meaning. There will be found as well narcissistic cases more approached to psychosis, whose symptoms are the non-specific expression of the narcissistic cathexis of the organ-representations, and of the resultant piling up of sex substance at the organs without adequate possibility of removal—a possibility taken away by the very regression to narcissism itself. Of course, these symptoms may still be reflecting the original external world conflicts in a regressively disturbed form.

Much confusion in the literature dealing with the subject of the "organ-libido" results because it is not always possible

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to determine whether what is meant is that the organ-libido phenomena which are under discussion are thought of as directly sex-substance ones, occurring chemically at the organ-representations, or whether they are phenomena which first take place psychically at the organ-representations, which last in turn call forth physiological changes in the organs. Freud, in the case of actual neuroses thinks, and no doubt rightly, of the direct bodily; and so does Ferenczi, in his "Pathoneuroses," upon which we will touch very shortly. And yet, in contrast to hysteria and normality, we will definitely have to accept the second assumption with regard to many "organ-libido" phenomena. Freud, for instance, has made it a basis of his more recent description of pain regarded as an organ-libido phenomenon in his book "Inhibition, Symptom and Anxiety." But he already had fixed the distinction between "the over-loading of erogenous zones with sex substances," and "the narcissistic libidinal cathexis of the organ-representations" in his study "On the Introduction of Narcissism," in which he says, for instance: "Every change in the erogeneity in the organs might 'parallel' a change of the libidinal cathexis in the ego." And only this last-mentioned "libido cathexis in the ego" may legitimately claim the name of "narcissistic organ-libido" in a narrower sense of the term.

This explanation made, there still remains a further difficulty to surmount: If the theory of hypochondria be correct, then it must also apply to the diseases of the organs, for these too, as Freud has shown, produce a regression to narcissism, a retreat of the object-relations upon the organ which has itself become diseased. As Busch says: "When we have a toothache, 'the soul' dwells only in the constricted soul of the molar." As a result, the psychic moving over of the organ-representations at the expense of the object-representations, therefore, is the same in hypochondria and in organic illness. The difference lies in the genesis: in the case of hypochondria we may, as has been said, consider material "sex substance" changes at the organ a result of the primary psychogenous transfer of the organ-representation, in the case of organic disease this transfer must be the result of the precedent material change in the

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organ. It is Ferenczi who has shown us that this actually is so. In his "Pathaneuroses" he has described a form of neurotic illness resulting as an immediate consequence of the shiftings of the libido induced by an organic disease. But now we have a new difficulty: if it be true that the organism, in order to heal a sick organ (i.e., in order to enhance its power of resistence) is in need of an enhancement of the libidinal cathexis of the organ in question, then the body-libido must also have a general vital function, and "body-libido" seems to be identical with "vital energy."

That up to a certain degree this actually is the case, is at bottom not unknown to psychology. For psychology has had the experience of finding that even in the realm of the purely psychic the "ego-maintaining energies" cannot always be sharply differentiated from the libido energies, and that the existence of an exclusively ego-maintaining libido factor can be demonstrated. Therefore, the narcissistic libido is really none other than the body-libido, the same libido which achieves cathexis of the body and organ-representations (and not, as does the "object-libido," the object-representations). Therefore—one must take it for granted—the bodily as well as the psychic ego-maintenance is dependent upon a libido condition. *Tausk* is therefore probably correct in speaking of a "libido-tonus," an optimal physiological cathexis of the organs, which is tantamount to a material sexual substance, as well as a psychic cathexis of the organ-representations. Clinical research is familiar with the consequences of the pathological enhancement of these cathexes (hypochondria, neuroses). Yet quite evidently there is also a pathological abatement of the same. It is true that we must at once add that not every "alienation" of an organ, not every disappearance of parts of the body and data of deep-seated sensitiveness from the range of the ego can be explained as a pathological abatement of the organ-libidinal cathexis of the kind. We know that when, for instance, an image or conception, an urge or impulse does not externalize itself in a neurosis, it is not always really divested of the libidinal cathexis; but may be only *repressed*—that is, be actually provided with a high amount of libidinal cathexis,

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and yet be prevented from manifesting itself by an equally high percentage of "counter-cathexis" acting in opposition to it. An analogous phenomenon may also easily be demonstrated in the sphere of the organ-libido. Here, however, the questions of the conflicts of resistance and repression, and their consequences as they affect bodily sensitiveness and motorism—of the very greatest importance for the study of organ neuroses and of actual neuroses, as well as for many bodily hindrances which still lie within the confines of the normal—have as yet been all to little investigated.

Two works by Freud and one by Ferenczi are the basis for all the problems which we have considered above. They are:

1. Freud: Drei Abhandlungen zur Sexualtheorie. Ges. Schr. Bd. V.
2. Freud: Zur Einführung des Narzissmus. Ges. Schr. Bd. VI.
3. Ferenczi: Hysterie und Pathoneurosen. Int. ps-a. V. 1919.

Important questions in the field of the organ-libido have been discussed in the following monographs:

1. Deutsch: Der Gesunde und der kranke Körper in psychoanalytischer Betrachtung. Int. Z. f. Ps.-A. KII, 1926.
2. Federn: Einige Variationen des Ichgefühls. Int. Z. f. Ps.-A. XII, 1926.
3. Fenichel: Über organlibidinöse Begleiterscheinungen der Triebabwehr. Int. Z. f. Ps.-A. XIV, 1928.
4. Ferenczi: Psychoanalytische Betrachtungen über den Tic. Int. Z. f. Ps-A. V, 1919.
5. Freud: Über die Berechtigung von der Neurasthenie einen bestimmten Symptomenkomplex als "Angstneurose" abzutrennen. Ges. Schr. Bd. I.
6. Freud: Die Sexualität in der Aetiologie der Neurosen. Ges. Schr. Bd. I.
7. Freud: Hemmung, Symptom und Angst. Ges. Schr. Bd. XI.
8. Reich: Über die chronische hypochondrische Neurasthenie. Int. Z. f. Ps.-A. XII, 1926.
9. Reich: Die Funktion des Orgasmus. Int. Ps.-A. V. 1927.
10. Tausk: Über den Beeinflussungsapparat in der Schizophrenie. Int. Ps.-A. V, 1919.

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The Neurasthenic Core in Hysteria

By Paul Federn, M.D.

According to Freud, neurasthenia is an actual neurosis; in the great majority of cases it originates as a result of sexual overindulgence, notably of cumulative onanism. (Yet other exhausting moments, which have an exhaustive effect, may also contribute their share, or be its sole etiology). In opposition to this conception Stekel and others have defended the psychogeneous origin of neurasthenia, declaring the unconscious psychic conflict a necessity, and that neurasthenia, too, is a psychoneurosis. Federn and others have confirmed Freud's interpretation, but have added, that the excess sufficient to release the neurasthenia depends essentially on the type of absorption; the psychic conflict acts not alone on the psychic, but also on the bodily sexual processes.

The psychic conflict, the conscious and unconscious sense of guilt, the repulsion, the aversion during the act and, generally speaking, every contradiction of the act itself disturb its sexual course and its rhythm and make them more difficult; they also slow up and render incomplete the restoration of sexual preparedness during the sexual pause for rest. In this way those symptoms described as sexual neurasthenia, and, more especially, as spinal irritation, come into being. Ferenczi's "single day" neurasthenia, in particular, shows this to be so. Reich has confirmed this by his exact investigation of the normal and the abnormal course of the sexual act; he has also drawn a characteristic picture of that chronic neurasthenia which results as a consequence, when fixate pregenital drive-components have prevented genital satisfaction.

The three actual neuroses—neurasthenia, anxiety neurosis and hypochondria—are all connected with the chronically disturbed occurrence of the sexual discharge, or else accumulation. The neurasthenic connection we have already briefly explained. Anxiety neurosis originates as a result of the detention of the sexual wave of satisfaction from the psyche. The etiology of hypochondria is as yet not sufficiently

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clarified. It is the narcissistic actual neurosis; considered from the libido-economic point of view, it rests upon an overcathexis of the bodily ego with narcissistic libido. Now I have been able to show, in my investigations of the ego-sense (Ichgefühl) and narcissism, that in dwelling in every narcissistic libido we have the character of preënjoyment and not of postenjoyment. Owing to the preënjoyment character of narcissism —which, possibly, is joined by the specific occurrences in the development of hypochondriac conditions—hypochondria etiologically also falls into line with the other actual neuroses.

Hence it is easily conceivable that all three actual neuroses so often unite in various mixtures. The neurasthenic displays a bit of phobic neurosis and of hypochondria; the hypochondriac also displays neurasthenic and phobic symptoms, and the phobic neurotic is in a moderate degree neurasthenic and hypochondriac as well. This, too, is the reason why the three actual neuroses were first isolated by Freud. The union of these neuroses in one and the same patient, however, is not incompatible with their clinical demarcation and separation. The fact is that cases also constantly recur in which only *one* actual neurosis exists with its own sole specific etiology; they seem to be experiments for Freud's conception. We also maintain that the actual neuroses do not stand in need of any psychoneurotic mechanism, and that they have neither any symbolic meaning nor have originated as a result of unconscious primary processes.

Yet one can understand why Stekel and others have contradicted this demarcation between actual neurosis and psychoneurosis which Freud has consistently maintained. That is to say, in every psychoanalysis made of psychoneurotics one comes to a time-strata in which actual neurotic symptoms were present in him. Furthermore, sexual inhibitions and disturbances exists in all psychoneurotics. If the observer be inclined to merge the individual causes in one general diffuse cause, it may easily happen that he also finds that the actual neuroses originated as psychic neuroses. Yet long continued analyses reveal that the actual neurosis was either no more than *one* deep strata in the development of the psychoneurotic symptoms,

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or that it is a later consequence of the disturbance of the actual sexual course of the psychoneurosis. And, finally, the psychoneurosis is also often complicated and strengthened by the accession of actual neurotic symptoms when the sexual life of the male or female patient assumes an intercurrent, an unhygienic form, or when a chronic injury of this kind finally is resolved in actual neurosis as a result of accumulation. It is for this reason that hysteria apparently so often develops in the critical life-periods of women, at puberty, at marriage, or at the time when they are adapting themselves to contraceptive intercourse. Hence we can see how closely actual neurosis and psychoneurosis are bound up with each other, just as closely as sexual living together is with the libido-determinations, and these with the affective and psychic life of the individual in general. Yet at times psychoanalysis, like Ariadne's thread, makes it possible to retrace our way to symptom-formation through this labyrinth of interconnections and causal sequences.

What holds good in general with regard to the origin of the psychoneuroses, and especially of hysteria, is analogically revealed by the following up of the individual symptoms. The first analytical experiences made it possible to accept the trauma as a specific cause; later, the tectonic explanation—according to which abnormal impulsive development and ego-genesis, in slow operation, allowed the neurosis to originate in this reciprocal conflict—took the place of this quasi-vulcanic one.

In the course of such phases of conflict the actual neuroses, as we have already pointed out, also come into being. Yet the traumatic genesis of the neuroses was also in part proved, in part again acknowledged. Freud found the common factor in the problem of the rupture of the provocation-defence, and presented it in his essay, "Beyond the Pleasure Principle." In the trauma the extraordinary intensity of the influence is shown, especially when it encounters a psychic system unprepared for defence by counter-cathexis, those unconsciously activated mechanisms which develop the neurosis. Yet in the case of impulsive conflicts as well the sudden enhancements of the

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impulsive power, which operate like the trauma, are not lacking. Yet above all it is the continuing excitement due to the warded-off impulse which, like a permanent irritation, sets the unconscious mechanisms in movement. Hence the genuine traumatic neurosis may create the identical symptoms, as a hysteria resolved by a psychic trauma, and both, again, may in many respects resemble a hysteria not, or hardly at all, of traumatic origin.

Hence we need not be surprised, when even in the case of the individual symptom we at times find a traumatic, at others an actual-neurotic core, and the one does not exclude the other. Otherwise one also finds as a core—we will get better and better acquainted with this word used for purposes of comparison—the symptom of some organic complaint, as in the case of organic neurosis. At times, however, it is impossible to discover any somatic point of crystallization for a conversional symptom; apparently, in such case, the expression of the unconsciously imagined desire occurs at the part of the body involved, without it being possible to prove any "response of the organ."

Where there are many symptoms we have a choice of symptoms, and therewith localization at the organ in question, because the latter is the organ of expression of an affect or also of an impulse-component which expresses itself in the symptom. This holds good, for example, when the longing for the mother is the core of the symptom, in cases of neurotic bronchial asthma (Federn, Weiss), and with regard to the suppressed weeping of frustration, in many tics of the facial muscles (Külövesi). That intestinal symptoms are connected with the displacement of anal, and bladder symptoms with the displacement of urethral symptoms, is again and again evinced. The intestinal symptoms in question in many instances, however, hark back to the neurasthenic period, hence only to the actual neurotic pre-stadium or medial stadium.

I shall list only some of the typical kinds of hysteric symptoms, and in such wise that I begin with those in the case of which I seldom or never was able to discover a neurasthenic, respectively phobic neurasthenic core.

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In symptoms on the part of the sensory organs, for example, in two cases of hysteric blindness, there was missing any connection with an actual neurosis, and quite as strangely was this true as regards the paralysis, whereas the cramps often were connected with actual-neurotic fatigue, and perhaps even more often with neurasthenic paresthesias, which often consist only in a light tingling, often in an itching or in a feeling of tensions. This last forms the transition to one of the most common neurasthenic core-symptoms in cramps, as well as in pains, namely to the neurasthenic sense of fatigue. The neurasthenic trouble is often undefinably made up of paresthesia, sensations of tension and fatigue, and a locally limited feeling of uneasiness which can hardly be called pain. The unconscious enhances this sensation to hysteric pain, to contracture or to both. When these subconscious determinations disappear with psychoanalysis, the actual-neurotic core may remain.

These observations lead to the final deduction that a core of this sort is available in the case of many conversion symptoms. In such a case, which often puts in only an ephemeral and not very intensive appearance, one must not think that fresh symptoms have developed—it is only the concealed actual neurosis which is revealed. The same holds good, during a treatment, of the recurring fear which formerly was inhibited and hidden by phobic, compulsive neurotic or conversion symptoms. Many paresthesias which are not localized in the manner characteristic of neurasthenia, appear as intestinal reflexes, corresponding to Head's lines and zones, and on occasion seem to be a direct outbreak of displaced affects.

The group of hysteric pains so frequently encountered very often connects with a neurasthenic pain or a pain in one of the intestines; this is notably true, with regard to women, of the numerous hysteric pains of the abdomen and pelvis. It is a question whether painful pregnancy-symptoms or cecum-symptoms of a hysteric type ever develop without any neurasthenic or some other analogous organic core, though this may be possible. In the case of masculine hysteria these very pain-symptoms and serious disturbances of the intestinal and stomachic functions are the most frequent symptom, and they,

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too, are in nearly all cases developed about a very early neurasthenic core.

Hysteric heart-phenomena very often are connected with an actual phobia. It is well known that certain organic diseases of the heart, which are coupled with fear, often offer a hysterical delusive picture of illness, namely mitralstonosis, which often causes diagnosis to err in a manner disastrous to the patient. Especially since Fahrenkampf recently called attention to it I have sent various cases who had strayed to the neurologist back to the internal clinic.

The different hysteric disturbances of consciousness seldom hark back to a neurasthenic, but more often to a anxiety-neurotic core; yet this is not invariably the case.

Before I turn to the theoretical side of our problem, I will briefly reply to the question of therapy, well aware that this question is only a provisional one. One is easily tempted to want to treat concealed actual neurosis directly, and take for granted a consequent facilitation in the treatment of the psychic factor. Unfortunately, this is the case only when it is a question of removing a complicating gross injuriousness in otherwise not serious cases. In cases of severe hysteria even the indicated improvement of the external mechanism of sexual satisfaction is often quite without effect. Even in the most normal mode of intercourse the disturbance of the termination and satisfaction remain. As a matter of fact, it has already been built into and maintained by psychoneurosis. This applies even more in the direct treatment of neurasthenia. No psychoanalyst lacks experience in this connection because even without our assistance the patient, and the environment upon which he depends, continue to make these attempts in a spirit of resistance. It is then purely a question of resistance treatment whether the patient be allowed to develop his own conviction of the uselessness of the attempts in question. It does happen that the strengthening of the collective organism occasionally achieves a betterment; yet whenever the occurrences have been more closely followed it will be noticed that a psychic factor has accidentally entered in addition, owing to the organic treatment. That directly hormonal or antitoxic treatment of all

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sexual neuroses which Freud has considered theoretically possible has not yet been achieved. Hence we must continue to exert ourselves, to resolve the fixations and displacements, and seek to lead back the libido to the modes of normal and most satisfying employment by means of this difficult detour.

If we now confront those symptoms in which an actual-neurotic core is the rule, with the others, we will see that the latter express themselves rather as the defence phenomena of the ego than as the impulse phenomena of the "Id." It seems that the ego-symptoms of actual neurosis are employed as the core of the psychotic rather than of the neurotic symptoms. This holds good, namely, for depersonalization and alieniation, and also for the disturbance of bodily ego in the case of hyperchondria.

The conversion-hysteric symptom has always been much stronger than the neurasthenic core; the difference in quantity is never, that in quality seldom, missing. The unimportant neurasthenic tingling turns into painful contracture, the neurasthenic indication of pain, easily concealed as a private matter, turns into hysterical torture, a torture felt to be tremendous and thus announced. For this typical difference, first of all, the compressions are responsible. Many desires create one symptom, which is represented by many impulses and much fantasy; while at the same time we know that the unsatisfied libido is dammed, thus enhancing the intensiveness of the symptom, and, furthermore, that once formed, the latter acquires an ever increasing importance. True as this is, the difference in quantity still seems to be inadequately explained. Against it is the fact that already, when the symptom first appears, the full difference is attained, and that no degrees of transition exist between the so slightly intensive neurasthenic, and the so powerfully hysteric, happening. It seems as though it were a question of another *dimension* of intensity, another measure of unity.

We do not achieve a real explanation if, as heretofore, we use only from the dream theory the method of multiform determinants as an elucidation, but only if we make use of our knowledge respecting certain body stimulating dreams. The

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conversional symptom, like the dream-experience results through *primary* occurrences, which lead to repression. In every body stimulating dream, and also in the case of external excitant dreams—which also become body stimulating dreams by reason of the sensory organ in question ordinarily lacking in dreams—the excitement acknowledged by the awakened individual is of out and out minimal intensity, compared with the representation given it in the dream-state. One should recall, for instance, the dream provoked by the straw between the dreamer's two toes. We find the same multiplication of intensity between the neurasthenic core and the hysteric symptom. Hence we must take for granted the presence of the same relation of the receptive and the reactant psyche in the genesis of the bodily excitant dream and the hysteric symptom. Yet we are acquainted with the characteristic attitude in dreams. The cathexes are withdrawn from those systems which are affected by the body-excitement. On the basis of my own investigations I may add that the ego-boundary has no cathexis. Thus it loses the protection that otherwise allows the stimulus to strike the ego on another part. Hence one must say, more correctly speaking, that in the case of neurasthenia, as in a waking condition, only a small sample of the irritant stimulus comes into action, whereas in hysteria, as in the dream, the whole energy continues to act. Like processes of easy, complete continuance of action we find only in the case of primary processes (in the metaphysical sense). Hence we can say, summarizing, that for the formation of a hysterical symptom, as in a dream, the ego-cathexes withdraw themselves so far that the primary processes push on from the ego to the bodily periphery and from the periphery to the ego, i.e., in a normal condition, whereas the neurasthenic symptom forms itself without such primary processes as occur in the normal waking state. This conception takes up once more Breuer's primary theory, although it does so in quite another form and avails itself of the Freudian metapsychology.

(*Translated by Frederick H. Martens*)

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SYMPOSIUM ON CHARACTER-PATHOLOGY

The Freudian Ego-Theory and Character Pathology

By HEDWIG SCHAXEL

Freud's interpretation of the neuroses is absolutely original, and differs widely from the current opinions. Before Freud, a neurosis was understood to be a disease of the nervous system. Yet for the real psycho-neuroses, such as hysteria and the compulsion-neuroses, no changes in the organic systems could be discerned. Perhaps in times to come, infinitely refined methods of investigation and marvellously refined optics will perceive anomalies in the brain or in the central nervous system of an obsessional neurotic which escape observation nowadays. It is still more probable that an increased knowledge of the as yet indistinct, scarcely foreseen processes of the inner-secretory system will one day enlighten us from the physiological side on those enigmatic proceedings in the human organism which we call neuroses.

Freud pursued a different course, conceiving the neurosis as a psychological problem, as the final result of a situation, originating in different factors. These factors are: first of all impressions and experiences from early childhood, the environmental conditions and the hereditary factors, and the way the the individual reacts upon all these circumstances. A neurosis, according to Freud's ideas, has no organic basis, is not the result of an outer or internal injure, but a gradual growth, a false development of certain tendencies, the origin of which is to be found at a period long separated from the appearance of the first symptoms.

Freud discovered the origin of the neuroses in psychic traumata of a sexual nature that occurred in early childhood, that were forgotten or "repressed," that is, forced back into the deeper strata of the mental apparatus, and later reappeared as symptoms.

This hypothesis of the trauma being the cause of neurosis, had to be abandoned also, as it soon became evident that other

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individuals, exposed to the same experiences, had suffered no harmful effects. It seemed tempting to assume that a neurosis would develop if a particular occurrence, for instance the attack of an exhibitionist, would disturb the psychical equilibrium of a child in the years of development. Yet, the facts proved that persons who never had undergone similar violent disturbances of their psychical equilibrium, were liable to suffer from the same symptoms. Still more puzzling was the fact that events to which patients referred with all visible marks of violent excitement, had never really occurred. Yet, in the psychic life of the patient they proved to cause the same pathogenic effects as the real happenings. It seemed necessary therefore, to distinguish between the outward evidence of facts and the no less effective world of their fantasies, their subjective psychical reality. It is this peculiar strain of untruthfulness in the tales of those patients which made hysteria for such a long time the step-child of medical therapy, as so many statements were easily proved to be falsifications. It seemed evident the sufferings of the patients were no truer than their statements.

So the cause of neurosis had to be sought elsewhere. And only on the basis of a richer material of experiences and better possibilities of comparison, Freud found his still current formula: *Neurosis is the result of a conflict between the different parts of a personality.* In order to make the complicated problem comprehensible and fit to be clearly demonstrated, we first accentuate what for Freud proved the result of an untiring work of decenniums: the *insight into the structure of personality.*

According to the present state of psycho-analysis we distinguish three *stages of personality*: *the Id, the Ego and the Super-Ego.*

Let us begin with the stage usually considered to represent the entire personality, i.e., with the Ego.

Everything which enters into our mind from the outer world through the gate of our sensual organs leaves its sediment in the Ego. But also the inner stimulations, the thoughts, feelings and sensations, as far as they do not escape conscious-

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ness, belong to the Ego. Freud proved that besides the conscious memories and ideas, at any time available to our cognisance, there exist others, escaping our cognisance, unfit to become conscious, prevented from becoming conscious, and accordingly remaining unconscious. But also the residuals of memories, attached to verbal ideas are to be found in the Ego. Another important function, the motility, devolves upon the Ego, exclusively. The fulfilment of a thought, its becoming a fact, involves its advance from other stages to the conscious, active Ego. The attitude of the Ego is in a high degree dependent on the outward reality. It perceives reality and attends to its postulates. It would still further comply with the requests of reality unless other parts of the personality which follow different principles would check it in this pursuit.

The psychic stratum supposed to stand outside reality is the so-called *Id*.

While the Ego is social, ready to compromise, adjustable, the *Id* is unadjustable. It represents the demonic, original, primitive element of the human soul.

The processes in the *Id* generally escape immediate knowledge, its effects show themselves merely in by-way. It represents the receptacle of the libido, the residence of the instincts. This instinctual quality shows itself chiefly in the sexuality of the individual which passes through different phases.

Let us, therefore, consider its development in these phases. Contemporaneously with nourishment the child receives the first satisfaction of its sexual instinct. The sucking at the mother's breast, the warm stream of milk issuing, procure pleasurable sensations. Very soon the child gets to the point of looking for this sensation, independently from nourishment. After having satisfied its appetite it still continues to suck. Deprived of the breast, it discovers a surrogate by sucking its own fingers. At this age the mouth is the preferred erogenic zone, the region of the body which provides optimal pleasure.

Quite auto-erotically and preoccupied with its bodily sensations, another region of the body, the anus, also becomes an agent of pleasure. Besides the process of nourishment and the adjoined sensations of sucking, also the process of defecation

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becomes pleasurably-toned affects. The infantile development of instincts has seized not only the oral, but also the anal region. The search for pleasure continues, and sooner or later the child proceeds to the discovery of the genital zone as a bodily organ, adapted to the production of pleasure.

Naturally we only schematized matters. The development of instincts is not supposed to happen actually in such distinctly separated phases. Quite the reverse takes place. The stages of development of the sexual instinct merge into each other, and exist contemoraneously. Up to the discovery of the genital zone the development advances, until it arrives to its temporary standstill.

This description might suggest the idea, that the instincts of children are exclusively auto-erotic, i.e., occupied with their own body, which, however, is not the case.

This simple state of affairs exists merely in the very first months of life. When this period has passed, the child begins to get interested in its surroundings, to form relations to objects. The first object-relation is the one attached to the person who is the medium of all impressions and satisfies all needs, to the mother. At first the child's acquaintance with the mother involves her merely as a provider of pleasure (source of nourishment) and it loves her accordingly. But as soon as the mother demands anything, the child's libidinal attitude towards her gets disturbed, the impossibility to resign pleasure and the inability of postponing it being an outstanding and essential characteristic of the childish personality.

In the first months of life very few demands will be made upon the child, other than to accustoming it to fixed hours of sleep and feeding, no efforts will be made to curtail the pleasures provided by its own little body. Later on, the demands of the educators increase, while the interest of the child in the surrounding persons increases as well. The education to cleanliness, the resignation to the compulsive regulation of the anal function are great demands, and heavily charge the faithful childish love for the beloved people surrounding it.

Forced by the nursing persons and probably already trained through hereditary experiences, the little being at last gradu-

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ally resigns the absolute rule of the pleasure-principle. The differentiated part of the Id which we call the Ego, utilising the experience collected from the outer world, forms a faculty which we call "testing the reality." Under this influence the child learns to postpone the satisfaction of impulses or even to resign them altogether.

It is no debility of the sphincter muscles which makes it so difficult for the child to satisfy the wishes of the grown-ups concerning cleanliness, but the resignation of an important source of pleasure which thereby is forced upon the child. The abandonment of the mother's breast had been the first great denial, the control of the excretory processes is the second one.

The satisfaction of the instincts in the oral and anal erotogenic zones are the pregenital stages of the libido. With regard to oral satisfaction we must distinguish between autoerotic libido and an oral satisfaction directed towards an object. This latter is alloyed with sadism and may be called an oral possession. This same sadism which we shall particularize later, also provides all anal manifestations with a powerful increase of energy.

The further development of the libido is fixed to the anal zone. The anatomical difference of sexes is noticed only much later. Boys and girls consider the penis the executive organ of their sexuality and feel sure of its possession. Hence we call this period the phallic phase.

The pleasure in the genitals, the onanism, is severely interdicted by the adults. Every child must listen to admonitions, such as: "I won't love you any more, if you continue these nasty ways." "You will get ill if you masturbate!" Why are adults so extremely intolerant against the pleasurable experiences in the genitals? Their energy in this matter seems to arise from the same deep sources from which the libidinal aims of the child originate, with the one difference that the reactions are contrary. The important item in their effects on the formation of neurosis and probably also of character, is the impulse to onanism, the accompanying fantasies. The child, let us say in its third or fourth year, has alloyed its object-relations with its genital sensations. Its observation and its

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instinctive knowledge of biological laws had taught it that adults not merely satisfy themselves at their own bodies, but that a union of two beings takes place which is causally connected with the origin of new beings, the children.

The child erects countless theories in regard to this matter, and all the former stages of the development of instinct are taken into consideration. The oral theory for instance, of procreation by the mouth, or the anal one of the children's coming from the faeces is scarcely ever missing in the cycle of childish unconscious ideas. Although the difference of sexes is not yea clearly comprehensible for a child of this age, an attraction of sex is already marked—the little girl has chosen her father as an object of her strongest instinctive desires. She wants a child from him, a somehow imagined bodily union. The little boy usually dreams of the possession of his mother.

The relation to the parent of the opposite sex involves desire as its main motive, the relation to the parent of the same sex involves rivalry. Both sentiments undergo modifications, which in the first case consist in early negative impulses, originating in recent and former denials. In the second case beside the hate-impulses, originating in rivalry, many libidinal impulses are kept up which are connected with previous and present love-events.

Two factors collaborate to silence these desires: Beside the physiological impossibility to realize these imperative wishes, there is the attitude of the surrounding persons. Under the pressure of denial and intimidation the child resigns the activity of its genitals, in order to save the genitals from destruction. In the castration-complex, the fear of losing the genitals, the Oedipus-complex finds temporary settlement. The child achieves this difficult denial through assimilation, through changing the outward denial into an inward one which is solved in its personality and forms one of its integral parts. We call this transaction *identification.* In these first identifications Freud sees the beginning of a new stage, a new differentiation of the Ego, which he calls *Super-Ego.* This last product of differentiation acquires an increasing importance in the course

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of development. It is the conscience, the critic and judge of all our thoughts and actions.

The impulses, under the menace of castration, are repressed and undergo different fates. Each of them bestows upon the developing personality its features. Two of these fates of impulses are of a special importance for the formation of neurosis: *Reaction* and *Sublimation.*

Repression, the removal of instinct-wishes from consciousness, is a universal and normal psychical process to which we all are subject. Its consequences, the formation of reaction and sublimation are also represented in every psychical organism. They are measures to safeguard the efficacy of repression and were produced under the influence of the educating and valuating powers. Thus they represent transformations of the Ego, through the pressure of the Id. The stronger the instinct-wish had been, the stronger the formation of the reaction. Such reactions are the transmutation of the childish scoptophilia into bashfulness, of the former coprophile into loathing his faeces, of cruelty into sympathy.

Sublimations too are enforced metamorphoses of the Ego, through which the desexualized instinct releases its primary aim and uses the instinctual energy on social aims. A child that is fond of painting and that shows skill and assiduity in this occupation proves that it has happily sublimated its coprophile dispositions. Our desire to acquire knowledge, our energy in scientific research, are derivatives of a sublimated sexual curiosity.

When in the so-called latency-period the instincts lose part of their intensity, the sublimation-processes may work more efficiently. The child, no longer overwhelmed by its instinct-wishes, begins to accept reality and to adjust itself to the demands of the pedagogues. The child enlarges its mental realm, and gradually appropriates the moral, ethical and aesthetic standards of its surroundings, and in this way shapes its Super-Ego. With an obedience, perhaps not at any time available for the authorities of the outer world, it complies with the requests of its inner voice, which not seldom requires real sacrifices. It is educable, and in these years, from the fifth or

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sixth to the eleventh, it acquires the fundament of its intellectual character and of its social personality.

This psychical period of preservation is followed by prepuberty and puberty. Man is the only being who is not allowed to pursue the path of instinct-development straight on. After the first early blossom which is unruly and unrealisable after the latency period, there follows again a stormy period—the puberty-period. All the difficulties and all the slumbering desires from the first years of development revive.

We call it *fixation,* if a component instinct leaves an unusual quantity of libido in an earlier libido-position, f. i. in the oral or the anal zone. It is important to mention that within the frame of typical development such as a floating-back, such *regressions,* as we call these phenomena, take place after surrendered phases of development.

The consequence of the first situation which we have called the *Oedipus-complex,* is the receding of instincts. The consequence of the renascences of puberty, is in successful cases the hurrying forward to realization. The different parts of instincts officiate in the service of the libido welded to the genitals, and of the procreation-function. The genitals concentrate the pleasure-possibilities upon themselves, and in the place of the incestuous objects appear newly-chosen objects from the outer world, which do not underly the incest-barrier, and permit the *realization of the genital desire.*

If we want to understand the way a character forms itself, and how a neurosis develops, we must once again return to the Oedipus-complex. The Oedipus-complex as an expression of the affective and sociological situation of the individual is to be considered one of the preliminaries of the formation of the personality which we call the "cultivated human being."

The first identifications are the fundamental elements of the Super-Ego. Their effects are so enormous and indestructible, because they draw the furrows in which the later psychical events are at work, because they are the first objects of love, and because the frail Ego of the child is much more exposed to the outer influences than the stronger Ego of the adult.

The way the first identifications are worked up, is decisive

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for the construction of the Super-Ego. "You ought to be like your father," is *one* of these possibilities of reaction. If the father happens to be a healthy and vigorous personality and if the child affirms the father, an active character is moulded from this side. But according to the extreme ambivalence of the childish sentiments such an absolute affirmation will scarcely ever take place. Another categorical imperative will always postulate "you ought *not* to be like your father." Let us consider the simplest case. A boy has a strong identification with his father. The father is very busy and religious. The child splits the father's qualities. Perhaps it becomes very active too, but the father's piety is reversed into aggressive atheism.

Naturally, however, the boy identifies himself not only with his father, but also with his mother. He wants to resemble her, and yet the obstinate defense "I would not be like mother," is never missing in any case. This basis of the Super-Ego is consolidated and increased by the later influences. All educating persons, everybody indeed who is of any importance to the growing child, all vivid mental impressions, are collected in the Super-Ego where they are worked up and leave their indestructible traces.

The problem of education is not to be grasped psychologically without the knowledge of the identification-mechanisms in the Super-Ego.

A harmonious, socially useful formation of character is only to be obtained if the single features are moulded into a harmonious and peaceful mixture. The classical example of such a happy combination Goethe described in his famous autobiographical poem:

> Vom Vater hab' ich die Statur,
> Des Lebens ernstes Führen,
> Vom Mütterchen die Frohnatur,
> Die Lust zum Fabulieren.

We must not expect this identification to be a purely ideal one. Not exclusively mental effects and the production of an ethical personality are created, but parallel to these the instincts have their way. Freud distinguishes two kinds of

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instincts: the sexual and the death-instincts. The investigation of the sexual instincts offered such an enormous field of activity to psycho-analysis that the research of the more intricate death instincts which were not so easy to investigate and the representation of which proved rather difficult, got somewhat in the background.

Yet, if we try to understand profoundly the structure of personality, it is not sufficient to consider facts merely from the sexual point of view. We never get into contact with unmixed derivatives of the libido, but always with alloys. In two instinct-mixtures we meet most frequently with the death-instinct: in sadism, as an alloy with object-love, and in masochism, connected with the Ego-libido. The instinct-mixture represented by sadism can more easily be used for social aims. Sadism in its sublimation means activity, and thus becomes a powerful pillar of culture. Also sympathy, a reaction to sadism, is one of the outstanding social binding agents and the most important social principle.

Character therefore is to be interpreted as a sum of successful reactions. It is the pressure from the critical Super-Ego which compels the Ego to resignation. It is this influence too, which compels us to submit to all the renunciations, which are part of conflictless adjustment, of indispensable repressions and of instinctual transformations.

Every phase of libido-development leaves distinct traces in the character.

As already mentioned, the first form of instinct-satisfaction is closely joined to the oral zone. It is of the utmost importance for the future formation of character how far the satisfaction had gone. Some mothers draw a disproportionate pleasure-gain from the sucking-sensation. They not only allow the children to prolong the act of feeding, but also nourish them as long as possible, a circumstance which leaves deep traces in the future character of the child. The reaction upon the strong accent on orality may express itself in two different ways: either the unswerving optimism of such individuals is indeed crowned with a success which other people endeavor to reach without results, or on the other hand the well-known type

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of the "eternal suckling," the man whose attitude towards life is marked by helplessness and who is firmly convinced that life is forever providing him with a careful mother, results from the same source. If this kind of optimism is not joined by energy from other libidinal sources it leads to disability. The choice of profession, hobbies and the whole social behavior are determined in a high degree by such oral influences. Many people f. i., whose talents would lead them to higher aims content themselves with the small career of officials, because the regularly flowing source of their little income involves a possibility of satisfaction. Also the circumstance of being the sole proprietor of the mother's breast, often leaves distinct traces in the character. The love-demand of the neurotic man who wants to possess the beloved one so exclusively that he expects her not to care for anybody or anything else, is in some of its components obviously retraceable to this exclusive possession of the mother-breast. A well-known lady philanthropist told me that she had been born during a long famine in her country, and therefore had been nursed by her mother three full years. By identification with this kind and unselfishly distributing mother, she had herself become a kind and loving mother to an extraordinary large number of people of all ages.

Insufficient satisfaction of the sucking-pleasure is equally noticeable in the formation of character. Such persons always have a claim left, they are discontented, ever pessimistic, and permanently cling in a vampyre-like fashion to other people. Their relations are generally built on an oral basis. They show an enhanced impetus to speeches, which however proves that they are not free from a sadistic component—the magic wish to kill the opponent, though only mentally. As from sucking to biting there is but a short distance, both activities using the same erogenic zone, this path is already biologically planed. Features of character which are developed in the early oral stage, with its tendency to sucking, are underlying ambivalence much less than those of the second oral phase which is characterized by biting and sadism. Unpretentiousness and generosity are features from the early oral phase. Vivid in-

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terest in all new experiences, bright and agreeable manners, are often the consequences of satisfaction in this early stage, whereas people who remained in the orally-sadistic stage show an aggressive and unkind disposition. The displacement of the sucking-pleasure into the zone of intellect bestows with effective impulses to craving for knowledge, scientific curiosity and research in general.

These earliest oral components of character are soon supplemented by *anal elements*. We are better acquainted with this type, the exaggerated features of which the psycho-analyst so frequently meets in compulsion-neurosis. In the same measure as the real possibilities of satisfaction by the mouth get lost, the importance of the anus increases. The action of opening and closing is removed to another sphere of the body.

The giving and keeping is in the centre of affects. The child is greatly interested in its excrements. (In pathological cases this interest returns in later years in the form of megalomania). The child has the tendency to draw the utmost pleasure-gain from the defaecation. Hence it does not submit willingly to the routine fixed by the nurse, but keeps, its faeces at its own sweet will, until it pleases to part with them. In later life such people find it difficult to be members of a community. They refuse to do things at dates fixed by other people, they postpone things to the last moment—in spite of this they sometimes do them with a rare exactitude and thoroughness. They are frequently imperturbably convinced that they do everything better than other people, and accept no help from anybody. Their infantile impulse to control defaecation often causes a downright mania of self-control and reticence which in extreme cases is adequate to mental obstipation and a complete spasm. Freud described a trio of qualities which in the one or the other reaction are regularly found in predominantly anal personalities. These features are orderliness, parsimony and obstinacy. But even these qualities are ambiguous examples. A woman of an anal character keeps her household spick and span, and occupies herself and two servants exclusively with tidying—yet her dress is always soiled. In this and in many cases this is a family feature. Her sister's hands and nails

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are badly kept, a startling enough coincidence in a well-to-do family. But she takes her rings every week to the jeweler to be cleaned. A man with a compulsion-neurosis spends whole hours with calculating how he could spare money for his food by getting invitations. He wastes his time on these calculations and other trifles, until he gets completely unable to earn his living. A too energetic suppression, or a too early resignation of the defecation-pleasure may produce a reactive pliancy, which remains in a permanent conflict with the latent obstinacy. The self-reliance of the child is closely connected with this first production, a connection mentioned especially by Jones and Abraham. The child attributes to its faeces magic effects and a symbolic importance. Gold as the symbol of excrements is to be found in the myths of many people. When the devil leaves his paramour, his gold turns into mire.

> All gold and silver rather turn to dirt!
> As 'tis no better reckoned but of those
> Who worship dirty gods.
>
> —(Shakespeare, Cymbeline, 3d act).

On the way over this symbolic equation of gold lie avarice and the valuation of money. Prodigality is only the other extreme. It means defecation-pleasure in the place of retention-pleasure. The productivity of every individual is in a high degree dependent on his anality. A writer with a compulsion-neurosis told me that with him a new phase of artistic production always announces itself by an attack of diarrhoea, the beginning of a disturbance of the productive vein by obstipation. To sum up these details we must state: Anality alloyed with sadism is one of the chief components of the formation of character. The stigma and the danger issuing from this phase is the ambivalence peculiar to this pregenital organization.

Successfully worked-up anal tendencies are of a high social value. They produce perseverance, activity, organization-talent, exactitude, charity, intellectual and artistic productivity. Personalities of a special cast like Napoleon and Bismarck are the result of these tendencies. In less successful cases we observe the other extreme, in the form of arbitrari-

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ness, inability to submit, irascibility, bad temper, endless lingering, want of pluck, and pedantry. Conclusively we state that well worked-up oral features are solved in genitality and cannot be isolated. Less favorable solutions and regressions to the oral phase we find frequently in the syndrome-complex of the psychoses where they offer great obstacles to research. The optimum is reached if the intense sucking-in is united with a sufficient tendency to restore. The oral tendency will always hurry forward, the other components must add a delaying and deepening influence.

In the formation of character as in neurosis the reaching of the genital stage of libido-development is the decisive point.

When the genital stage is fully reached all great ambivalences, accompanying every pregenital phase, disappear. Man becomes capable to perform also sublimated object-cathexes, inhibited in their goal, besides the mere instinct-satisfaction. He is capable of manifesting tender and careful aspirations, to form relations considering objective facts of the outer world.

In this matter, as everywhere else, the way the Oedipus-complex had been worked-up is the decisive factor. A successfully worked-up Oedipus-complex disengages psychical energies which become free for new aims. If it is insufficiently worked-up, the psychic energies remain fixed, and the unfortunate individual who is thus in the power of unsettled conceptions, is driven into worthless or disturbing reactions. Disfigurements of character and manifest neuroses are the result.

Another cause of deformation of character is the constitutional reinforcement of the death-instincts. In such cases sadism inundates the Super-Ego and allows the unprotected Ego only the outlet into masochism. This is the genesis of the masochistic character. Such people may perform social work of the highest order, but they remain unhappy and enjoy neither success nor pleasure, their Super-Ego forbidding them any satisfaction. The Ego which not only controls motility but also acts as a regulator in the service of the Id and of the Super-Ego as well as of the outer world, is thus obliged to sacrifice itself, in order to spare the outer world of objects.

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Another characterological failure is due to the impossibility of uniting the identification-elements of the Super-Ego. This is the genesis of the so-called multiple personality. The opposing identifications behave like disputing opponents who alternately usurp the reign of consciousness and of the Ego.

It is extremely important, with regard to the development of character and of sociability, that the first identifications should emanate from the dominating, educating, eminently social persons who are opposed to instinct-gratification. If this basis of privation is missing the individual becomes an unsocial, defective personality. This is the case if in early youth instinct-wishes like the Oedipus-desire are satisfied. The absence of this motive of sublimation and reaction deprives the Super-Ego of important components. Its gaps and defects incite the individual to try to enforce his wishes by means which the outer world cannot tolerate.

The outstanding feature of the instinctual character is the uninhibited yielding of his wishes. The insufficient repression, the perversion, and the disturbed action of the Super-Ego are responsible for this unfavorable development.

Other deviations of character too, result from faulty identification. A girl whose identification with her father is too intense will refuse to play the female rôle in life. A normal development of the character of a girl contains many identificational elements of the mother, while the normal boy identificates himself chiefly with his father.

The neurotic character and the neurosis with symptoms can only result from an internal conflict, a privation. External conflicts, external privations may often be the ultimate impetus, but the internal conflict, *the conflict between the Id and the Super-Ego which the Ego is unable to solve* is the decisive *cause*.

In spite of the instigations of the Id to fulfil its own urgent instinct-desires, the severe Super-Ego forbids their satisfaction. The repressions created through fear of the Super-Ego are only partially successful, the forbidden Id-impulses do not disappear completely, but hold the position, though in the changed form of surrogates and symptoms. Defective repressions or exaggerated reactions are the result.

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Under such circumstances the repression of the libido is inevitable. If for instance the genital libido sticks to the incestuous object while the Super-Ego refuses the fulfilment of its wishes, the regression must take place. The stream of libido stopped by these obstacles, floats back. On its way it reaches pregenital places of fixation, correlative to the past phases of development, and revives them. In serious cases of neuroses the primacy of genitality disappears, and the part-instincts become active.

Every neurosis contains such regressional libido-developments. The way this defense against the forbidden idea is organized is different in the different forms of neuroses. In hysteria, repression is the most frequently used means of defence. Compulsion-neurosis employs several defence-mechanisms: Repression, displacement, negation, and the isolation of ideas which are thus withheld from comprehension and consciousness.

To sum up briefly: Freud's psychology interprets man as an instinctual being, determined by psychic powers. Freud discerns two kinds of instincts: the death-instincts and Eros or the sexual instincts. The sexual instincts which are governed by the pleasure-principle insist on gratification. The equally powerful death-instincts oppose themselves to this urgent desire. It is this eternal change between tension and detension which characterizes all psychic movement.

The construction of the personality is a product of differentiation. The Real-Ego is split from the Id and becomes the gate to the outer world. The Super-Ego, differentiated from the Ego, intensifies the ethical commands.

Freud says in his book, "The Ego and the Id:"

> If any one were inclined to put forward the paradoxical proposition that the normal man is not only far more immoral than he believes but also far more moral than he has any idea of, the psycho-analysis, which is responsible for the first half of the assertion, would have no objection to raise against the second half.
>
> This proposition is only apparently a paradox. It simply states that human nature has a far greater capacity, both for good and for evil, than it thinks it has.

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Neurasthenia and Hypochondria

Introduction to the Study of the Neurasthenic-Hypochondriac Character

By Paul Schilder, M.D., Ph.D.

The neurasthenic patient has always been a riddle from the psychological point of view. Beard believes in a spinal irritation. The psychoanalyst Landauer considers neurasthenia an organic toxic state that is not be understood from a psychological point of view.

Freud subsumes neurasthenia and hypochondria under his group of "actual neuroses." He holds that an actual neurosis occurs when there is a present difficulty in living out one's sex tendencies. These difficulties may consist either of abstinence or coitus interruptus or condomatus or frustrated sex excitement. Freud even has the idea that special forms of actual neurosis follow the various types of somatic sex dissatisfaction. The dissatisfaction has an immediate toxic influence which provokes anxiety—neurasthenia—hypochondria.

Stekel, Jones and Schilder have stated that anxiety is not provoked by an immediate toxic influence but follows a repression and is a product of conversion. Freud himself does not believe today that anxiety develops from somatic-toxic effects, and instead sees in anxiety a psychic reaction to a dangerous situation. The danger may be outward or may be an inner tendency which leads into dangerous situations. He is not concerned at the present time whether or not a conversion of libido into anxiety takes place. His conception of anxiety has undergone important changes.

Nevertheless, he still maintains his opinion that neurasthenia and hypochondria are caused directly by toxic influences of sexual energies and sex products not properly used.

Reich shows that neurasthenic troubles occur following a sex conflict. By means of this conflict the unemployed sexual energies are converted into something else. To him the neurasthenic symptom is not the immediate effect of sex products but the result of the conversion of this sex energy.

The chief symptoms of neurasthenia are as follows: fatigue,

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inability to concentrate, pressure on the head, dizziness of a mild degree and troubles in sexuality (impotence); spermatorrhea, troubles in sleep, are rather common. Hypochondriac fears and hypochondriac sensations occur often.

When one reviews the superficial clinical facts two things become obvious. Neurasthenia, in the first place, occurs in a much higher percentage in men. Secondly, there are especially two ages which seem to be predisposed to the acquisition of neurasthenia: puberty and the age of forty. But these two ages are those in which special psycho-sexual developments take place. The age of puberty is the adaptation to the new sex task. It would be too narrow to suppose that there is only a sex task that has to be solved in puberty. The whole life, as a matter of fact, has to be rebuilt and the way has to be found from exuberant day dreams to the narrower paths of reality. The ideal of ego undergoes changes. The whole process is not a continual development, but goes in phases. The partial desires and the genital sexuality push forward, break through, and are immediately pushed back again by an ideal of ego which is extreme in its repressing power. Irregular waves of unlived-out libido are then converted into neurasthenic symptoms. The unsatisfactory release brought by masturbation sets free sadistic tendencies which, incorporated in the super-ego, increase the feeling of guilt which comes from many sources.

The increased pressure of the ideal of ego converts the unlived-out libido into the manifold neurasthenic symptoms of youth. The common fears in connection with masturbation are that one would lose one's mind, that one would become weak and unable to work. All that is very closely connected with the castration complex. There is even the fear of losing every possibility of enjoying sex—what Jones calls *aphanisis* (disappearance of sexual potency). Hypochondriac traits are common. All activities in connection with sex are watched with suspicion by the patient. These neurasthenic and hypochondriacal symptoms are primarily the expression of a desire to enjoy one's own body without caring much for the outside world. It is a regression to the narcissistic stage. At the same time the ideal of ego forbids its enjoyment in an open way.

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There is even a desire to get rid of a body which, by its too high a libidinous pressure, endangers the adaptation to outer reality demanded by the ideal of ego. This is the theory of the genesis of hypochondria that Freud has given. He compares the organ which is in the center of hypochondriacal attention with the genitals which also always furnish sensations that try to take possession of the whole personality. What I want to emphasize is that in puberty there are many factors that prevent the realization of the libido, which therefore is stored in the body and provokes the neurasthenic symptoms. There remains only the question why do neurasthenia and hypochondria result in these particular symptoms? But we have postponed this question until we have discussed the psychic situation of men during the ages of forty and forty-five.

Forty or forty-five is the age when a strong ideal of ego has been built up. A definite position in society has been reached. A façade has been built up which shields one from the uncontrolled tendencies of childhood and adolescence. In order to climb the social ladder, in order to build up this façade, many renunciations had been necessary. Perhaps even too many! The chase after social honors and wealth (they are closely connected with each other) is already partly due to the compensation of libidinous tendencies. The Ego-ideal at forty enjoys control over the Ego. There is a great amount of self-love in the successful business man of forty. His activities in practical life, it is true, partly satisfy his sadism in a sublimated way. His ceaseless insistence upon work is partly a satisfaction of sadistic tendencies against objects and co-workers and partly a sadistic self-punishment directed against the ego. But these self-punishments make it possible for him to give himself value the more. After the self-punishments he enjoys himself in a narcissistic way. Of course, there is some danger that if this façade be impaired there will no longer be any possibility for object kathexis. Neurasthenia never occurs from overwork alone. Only if there is a failure in business or such a success that further progress is not any more attainable the person gets his "nervous breakdown" and will finally declare that it was not worth while to put the whole libido into the work.

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Certainly it is a problem why persons work "too much" and it is a question of the greatest importance why in modern civilization labor has become a value in itself. The same processes, repressing the genital libido, increased sadism, sublimation of the sadistic tendencies in work and self-punishment by means of work which take place in the single individual also occur, as far as I can see, in the mass, and give to our era the stamp of restlessness, simple-mindedness, hurry, and ceaseless labor. In so far as this is true the present civilization is responsible for the increase of this particular type of neuroses. When the individual feels that it was not worth while to submerge the better part of his personality in work and to renounce love, neurasthenia sets in.

This psychic development can only be understood if we get an inside view of the love life of the average successful man of forty. He has not generally the courage requisite for a real deep love. He prefers eroticism of the superficial type. He frequently keeps his love objects directly or indirectly much more by his social position and wealth than by his personality. He debases his love life. The very fact that in social activity so many sadistic tendencies[1] are satisfied takes energy from the genital libido. No wonder that sooner or later difficulties in potency occur. It is from this point that neurasthenia often starts. We understand now better why neurasthenia in that age is especially a disease of men. We should not forget that the coming fifties with their bodily changes make sex-adaptation more difficult.

These are the actual situations which determine the outbreak of neurasthenia. As has been mentioned, hypochondriac trends are also common. They prevail often. The border-line between hypochondria and neurasthenia is not sharp at all. The hypochondriac is in fear of a serious somatic disease. He has sensations which justify his suspicions. Mostly he does not actually believe this but he is very near to this belief and is afraid lest he be convinced of the fact. At the same time it is not possible to convince him that his fears are without basis.

[1] We know that with the sadistic tendencies of grasping and overwhelming are connected tendencies of keeping and retaining. Here the interest in money comes in. The connection with the anal tendencies of retaining is obvious.

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But his actual complaints are not so far different in their nucleus from the neurasthenic complaint. When there is not belief but conviction there begins the region of hypochondriac psychosis.

But still also when there is real hypochondria the relation to reality is not as close; the ideal of ego is not as strong as in neurastheina. Hypochondria is, at any rate, nearer to psychosis. The actual cause of hypochondria is not always as clear as in neurasthenia. The relation to the successful age is often absent. The constitutional factor may prevail. What that means from a psychological point of view will be discussed later.

But the hypochondriac, as well as the neurasthenic, does not agree when he is told that he has problems of psychic adaptations. He believes rather that there is something going on in his body; or in other words, neurasthenic and hypochondriac symptoms are projections from the psychic sphere of central interest to another sphere which is at least felt as somatic and does not belong to the nucleus of the personality. It is felt on the periphery of the Self. But we should not deny that a real somatic change takes place when hypochondria and neurasthenia symptoms occur. Freud and Ferenczi believe that in hypochondria there is indeed too much libido in the organs; libido is dammed up there. And libido is also a somatic agent. We have at least the right to speak about a tendency to conversion, although the final proof that there is some change in the body cannot be always given. But vasomotor changes are often obvious, there is constipation and spastic states of the bowels and in addition there exist, impotency, spermatorrhoea and prostatic over-secretion. Conversion does not only take place in hysterics but also in neurasthenia and hypochondria. It is worth while to compare these two types of conversion.

TABLE OF SIGNS OF CONVERSION IN HYSTERIA AND NEURASTHENIA:

Hysteria	*Neurasthenia*
Amnesia Hallucination.	Lack of concentration.
Spasms, Paresis, Fits.	Pressure on the head.
Disorders in sensibility and sensation.	Dizziness.
	Fatigue.
Hysteric points and phenomena of spontaneous pain.	Hypochondriac sensation.
	Hypochondriac pain.

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Vaginal anaesthesia.	Troubles in potency, Spermatorrhoea.
Vasomotor troubles. Organic diseases.	Vasomotor troubles. Constipation and spastic states of intestines. Palpitation.

This table shows that the tendency to conversion is in common with hysteria and neurasthenia. But it becomes immediately clear that the hysteric gets rid of his psychic problems by a mechanism which is more careless of reality. Amnesia and hallucination neglect reality with less care than, for instance, lack of concentration or pressure of the head. The queer feelings of the neurasthenic are not as far removed from reality as the hysteric anaethesia. This difference has very likely something to do with the greater tendency of the male of especially the age of forty to stick to reality. But hysteria as well as neurasthenia reach into the organic depths of the body, into the field of real conversion. Doubtlessly the conversion is very closely related to projection; in comparison with our inmost feelings and strivings the body is "outward." And when conversion takes place what has been a psychic problem, is now a disease of the body which belongs partly to the outward "world," although not so far outward as other objects. Hypochondriac and neurastheniac disorders are therefore described as if there was an object in the organs. The patients speak about a ring pressing the head together, about lead in their limbs, something solid in their liver or abdomen, bubbles under their skin, etc.

Neurasthenia and hypochondria are—like other neuroses—ways of getting rid of tormenting conflicts. Their mechanism is one of conversion which tries to keep in closer touch with reality than the hysteric mechanism.

Hyochondriac and neurasthenic symptoms must, therefore, have an unconscious meaning.

Let us review from this point of view the different symptoms of neurasthenia. The various troubles of potency, such as promature ejaculation, incomplete or absent erection, inability to enjoy orgasm ("orgastische Impotenz"—Reich.) are the expres-

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sions of renouncement of genital libido for the social activity which is, as we stated, partly sublimated sadism of a more primitive origin. In adolescence it is often very clear that the progress from the partial desires to genital sexuality has been checked. Sadistic urinary and anal tendencies can be very easily found.

In one of my patients with premature ejaculation and occasional spermatorrhea, enuresis had persisted a long time. In one of his phantasies a man refuses a girl who is in extreme sexual excitement after having torn off her clothing, and has an ejaculation turning away from her. Another of my patients, a youth of 19, complains that he is unable to study as others do. Once, with a prostitute, he felt disgust of her greasy body and was impotent. Feels always tired. Would like to sleep the whole day. Has always the desire to rest. His head gets heavy and droops. Phantastic ideas about sexual inferiority, inferiority of his body exist. Discontented with not having enough hair on his body and therefore not being masculine. Believes that he looks like a hermaphrodite, that his nose is too big, and that he is too ugly. The patient is a very tall, stooping fellow, and has an infantile face. His genitals are normally developed. He had at the age of two epileptic fits that he does not know about. Behind this neurasthenic and hpyochondriacal facade are very strong sadistic tendencies. Gets erections when he hears children crying. Sadistic games with a cousin between 12 and 14. But there are many ceremonies concerning urination and defecation. In early childhood refused to go to toilet. Before he goes to a party he has to urinate again and again. He also wants to have everything, including faeces, pressed out. Sometimes he feels as if he should pull something out of his head; he has to blow his nose. He gets an urge to urinate and defecate. Of course, that is an extreme case, but it shows clearly the mechanisms underlying the neurasthenia and hypochondria of adolescents and especially the motives of their impotence. There is a resignation of genitality, but it must not be forgotten that the neurasthenic and hypochondriac of later life still has his developed genitality. It is not so completely abandoned as in schizophrenia, and the regression to anal and sadistic tendencies is not so tenacious as in obsession neurosis.

Whereas the impotence of the neurasthenic indicates his resignation to genitality, the fatigue is the renouncement of the sublimated sadistic activities. It is in some way a phenomenon with a similar background as the melancholic inhibition and the abulia of the compulsion neurosis. Finally, the type of sadism which is turned into a symptom is different and also the structure of the ideal-of-ego and the adaptation to the reality is different in fatigue, abulia and inhibition.

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The lack of faculty of concentration in neurasthenia is the continual complaint of those who believe that they have ruined themselves by masturbation. It reveals itself by that as a part of the castration complex transferred from below to above. I may remind readers that according to my experiences, the frequent complaint of schizophrenics that somebody takes their thoughts away has a similar basis in the castration complex (complex of being cut into pieces, and mental and physical mutilation). But of course the *withdrawing of thoughts* in schizophrenics and the lack of concentration in neurasthenia take place on different levels. Dizziness does not need an elaborate discussion since it is well known that dizziness always occurs when there are antagonistic tendencies in the psychic system.

Constipation and spastic states of the intestines may be the expression of the same tendencies of keeping and hoarding which led to accumulations of money and social prestige—a new illustration that interest in money and anal tendencies are closely connected. The youth about whom I have reported was extremely close-fisted and thrifty. But it seems that this interpretation is rather based on what we know from other experiences than from actual experience in neurasthenia

Hypochrondiac symptoms will be found especially in organs which were too much loved by the individual. In one of my cases, hypochondria occurred after a slight injury of the thumbs in a person who had always cared especially for her hands and had manicured them better than others of her social standing. Singers develop hypochondria about their beloved voice and throat. In another case of mine, an actor got hypochondriac sensations in his mouth after one of his teeth had been removed and replaced by an artificial tooth in order to give him a better appearance on the stage. Hypochondriac sensations symbolize the genitals. The sex pleasure no longer experienced on the genitals is now experienced on the symbolic genitals in the hypochondriac's organs. According to my experience, the hypochondriac sensation symbolizes much more often the male genitals than the female.

One may ask whether there is some relation in this to the

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common hysterical symbolizations of the the penis. The answer is that in hysteria the clavus and the globus and many other sensations of this kind symbolize the genitals of special persons. The penis is not meant as the isolated organ but as a part of a personality which is loved and appreciated. The hypochondriac symptom is the symbolization of sex tendencies concentrated only on the genitals as such. There is not a relation to a special person behind that. One feels that more or less the genitals symbolized are the genitals of the hypochondriac himself. Of course, there are also female organs symbolized in the hypochondriacal sensations. There are caves in the body, consumption of organs, empty spaces. But we hear much more often about stiffening in the body, tight muscles, a piece of something sticking somewhere. Hypochondriac sensations are felt mostly 1 or 2 cm. under the skin. There is no organ which could not be the seat of hypochondriacal sensations and fears. In two hypochondrical psychoses I have observed there were special hypochondriacal fears about blisters on the mouth. Both persons reproached themselves for either cunnilingus or penilingus.

There remains the question along what lines does the conversion take place? We shall never understand either the hysterical or neurasthenic and hypochondriac conversion if we do not know how one's own body is experienced. We have a picture of our body, the so-called postural model of the body, the bodily scheme, "Körperschema." It comes out in the phantom of the amputated hand. This picture of the body is the basis for our narcissism, our self-love is fastened on this postural model, and only self-love keeps this postural model of the body together. Self-love replaces the amputated limb, the phantom, which contains not only the experience of the immediate past, but also the experience of childhood.

If the phantom persists for a while, the hand becomes smaller and becomes like the hand of a child. The postural model is built up in several "time layers." It follows our everyday knowledge of the body. The differentiation between left and right is acquired rather late in the individual experience and therefore can be easily lost. We do not have a fair knowledge of our own skin. If we close our eyes we feel our skin

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paradoxically "under the surface." The tonus of our muscle influences the postural model of the body. Whenever there is f.i. an increased tonus of the postural and righting reflexes the postural model gets distorted in the direction in which the increased tonus tries to pull the limb. Every sensory experience we may have is brought in relation to this postural model. We experience our own body not according to present sensations alone, but according to a scheme which we build up from the childhood on the build and rebuild again. In the building and rebuilding of this scheme narcissistic libido plays an important part.

In one of my cases, sadistic tendencies of cutting and tearing others to pieces were very strong, and the patient felt that she, too, fell to pieces. The inner part of the body is felt only as a heavy mass. Sensations of the inner parts are also in the normal only felt one or two cms. under the surface. That is the reason why in the so-called "Head's Zones" the hyperaesthesia is projected towards the surface of the body. As far as preliminary experiences of mine show, also pain in neuritis and in other internal diseases is mostly projected against the surface but does not reach it. We must not believe that the optic impression of our own body is accurate and conforms completely with the reality. If we keep our limbs in unaccustomed positions we lose the power over them. Finally, we never know how we really look. The more we look into the mirror the stranger we seem to ourselves. We never can perceive what is really going on on our skin. We do not know even how the skin of others looks. One is always astonished about the colors and lines of naked bodies. Therefore the condition of the skin is an inexhaustible source of hypochondriac complaints. They say the skin does not look right, but they complain also about the queer sensations in the skin. We understand those complaints better remembering that the normal also never feels the smooth surface of his skin, but a rather indistinct blurred border line[2]. The relative vagueness of our postural model makes conversion from the genitals to other parts of the body possible. Special

[2] All the remarks about the postural model are based on personal researches I have carried on for many years partly with the co-operation of my co-workers Hoff and Hartmann.

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attention should be given to the representation of the genitals in the postural model of the body.

We know that all the erogenic zones are marked especially in the postural model of the body, the nipples for instance. Every organ has a special representation in the postural model. This representation is changed by personal experiences. The actual postural model of an individual is in some way the balance of the present stage of the distribution of his libido. Conversion mostly takes place along the lines of the individual postural model which contains the history of our libido development.

If one compares from this point of view again the hysterical conversion with neurasthenic and hypochondriac conversion, one noteworthy feature appears. The hysterical conversion occurs in much closer connection with the individual's experiences. Hysteria takes place in the part of the postural model which has been built up individually, whereas the conversion of the neurasthenic and hypochondriac has less to do with the individually built-up part of the postural model but with the part which is rather common with all of us. It is interesting to compare from this point of view the variety of hysterical symptoms with the tiring uniformity of the neurasthenic symptoms. The single cases of neurasthenia are much more similar to each other than the single cases of hysteria.

I have frequently emphasized that uniformity of the mental pictures in a mental disease points to a lesion which is either organic or near to the organic sphere; at least in a layer which is very early, or even pre-natal, or prehistorical. Neurasthenia and hypochondria are also in this sense "narcissistic." The narcissistic stage is the stage when self-love is given to the whole body and the body is loved like one's own genitals. But we have to assume that those persons who get hypochondria or neurasthenia when having an actual impairment in puberty or later have a postural model which is labile and weak either in connection with early experiences we do not know about and which are perhaps beyond our descriptive faculties, or in connection with a constitutional weakness of the postural model. We can imagine this constitutional weakness of the postural better if we know that the functions of the parieto-occipital

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lobe are the basis for building up the postural model of the body . Perhaps, however, this weakness of the postural model of the body is less a weakness of the scheme itself than the inability to put enough libido into the postural model. We call the point of fixation according to the psychoanalytical terminology, the layer of the psychosexual development which, either due to constitution or due to individual experiences has arrogated to itself too great an importance. The point of fixation for neurasthenia and hypochondria lies in the early stages of the development of the postural model of the body. By constitutional or acquired weakness in hypochondria and neurasthenia single parts of the postural are chosen out of the whole bodily picture and attract more libido than they should. Neurasthenia and hypochondria are diseases where the floating of the libido to the different parts of the postural model has been directed to particular spots. We have to imagine that libido is always floating to and fro, from the genitals to the other parts of the body and back. This flow of libido is changed by actual events of life which accord with the prehistoric weakness of the postural body. Of course individual experiences will give the particular coloring to the individual cases of neurasthenia and hypochondria. Besides the principal fixation mentioned above, there will be fixations in more recent layers according to the experiences in stages of life which can be more easily understood from the purely psychological point of view.

The postural model transfers its activities to the life centers in the diencephalon and midbrain. The stream of vaso-vegetative innervation is shaped and directed by the postural model of the body. We understand now better why we believe—also from the psychoanalytic point of view—that neurasthenic and hypochondriacal symptoms are also "organic."

There remains only the question why the point of fixation lying in such a primitive layer in neurasthenia as well as in hypochondria, neurasthenics and hypochondriacs are still behaving as normal persons and are not psychotic in the common sense. Generally, we can assume that when a repression goes to very primitive layers there will not be a neurosis but a psychosis. This point of view is thoroughly justified, but we have

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not only to ask how deeply the repression goes, but also whether the total personality is involved in the repression. The answer is rather simple. The repression in neurasthenia and hypochondria goes to a very primitive level, but only in the special field of the postural model. I may add that in the end every conversion, including the hysteric, affects the body and runs into the pre-historic periods. But in hysteria the major part of the personality remains directed towards the heterosexual love object, whereas in neurasthenia and hypochondria the individual continues to pursue his social aims. In brief, we could characterize neurasthenia and hypochondria as diseases of the postural model of the body or, in order to make use of a term which would be in accordance with Wernicke's terminology, they are *somato-psychoneuroses.*

Since, according to this psychogenetic scheme of neurasthenia and hypochondria we can grasp the actual psychic causes of neurasthenia and hypochondria better than the point of fixation in the postural model, it will be generally sufficient to explore the actual psychical situation of the individual. Where secondary points of fixation in the infantile period are of importance, complete psychoanalysis will be necessary. Since the postural model of the body is affected so much in neurasthenia and hypochondria and with it the love for one's own body, we understand that caressing the body's surface by means of baths, showers, and massage is so often successful, when at the same time the rest forced on the patient makes it impossible for him to use his libido for sublimated sadism (work) and for anal tendencies (money making).

We should consider the somatic treatment generally more from the psychoanalytic point of view. Massages, showers, douches alter the distribution of the libido. This change is partly going on in the conscious or unconscious, but partly very likely goes on in a somatic sphere akin to this conscious and unconscious activity. Here lies the connecting link between somatic medicine and psychoanalysis, and perhaps we shall understand the vasomotoric effects of hydrotherapy better if we know that in the psychic sphere hydrotherapy increases the individual's love for his own body.

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The Anxiety Character

By Ernest Jones, M.D.

In discussing the problem of the anxiety character it is necessary first to form some clear conception of what exactly one means by a neurotic character and how this differs from a neurosis or psychoneurosis. The problem is an important one. The condition known as neurotic character would seem to be quite as common as any form of neurosis and is second only to this in the amount of suffering it causes, directly and indirectly. Its chief practical interest for us, however, is the difficult therapeutic task it sets, for there is no doubt that a neurotic character is far harder to influence than any kind of neurosis. It is the field where psycho-analysis achieves one of its greatest triumphs, there being no alternative method of treatment available for the condition except the unprofitable one of moral homily. Indeed, it can be said that before the days of psycho-analysis the condition was hardly recognized as a pathological problem.

The distinction between a neurosis and a neurotic character can be effected on either clinical or pathological grounds. A rough formula in which both these points of view are represented is the statement that a neurotic character signifies a neurosis that has been accepted by the ego. We know that a neurotic symptom, on the contrary, is something that has been produced in despite of the ego, is something thrust on the ego against its will. It arises from a conflict between the ego and the instinctual basis of the mind which Freud has termed the id. An impulse which has previously been inhibited ("repressed") is re-animated, but is able to achieve its aim of obtaining gratification only after the expression of it has been modified by the influence of the opposing ego. The resulting compromise product is called a symptom and the question then arises of what attitude the ego is going to take up towards this unwelcome appearance. Curiously enough, it displays two opposite tendencies in this respect. On the one hand it

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tends to continue against the symptom the same attitude of condemnation, aversion and antagonism as it had originally displayed against the impulse that led to the symptom being formed. It minimises the significance of the symptom, conceals its effects in every way it can, and thus disavows and discounts the neurosis to the best of its endeavor. On the other hand it also, when it can no longer deny the existence of the symptom, has the tendency of incorporating it as much as possible into its own system. It makes use of it, justifies it, exploits it and develops from its presence what is called the epinosic gain or secondary gain of illness.

Now the formation of a neurotic character is related to the second of these two tendencies and may, indeed, be said to represent the logical consummation of this. It mainly differs from it in taking place at an earlier stage in the whole process. Instead of a symptom being first formed and then absorbed more or less completely into the ego, the absorbing process is at work from the beginning. The result is that the invasion of the ego is much more diffuse than in the case we described above. The whole structure of the ego, i. e., the character, is permeated by the ramifications of the id impulse and is also modified as a whole by the reaction-formations which always arise in the defensive fight against this. You may ask how do these permeations differ from sublimations, which also represent id impulses that have been modified and accepted by the ego. This is not an easy question to answer and it is likely enough that there is no hard and fast line between the two. But, broadly speaking, the change undergone by an impulse that has been sublimated is more radical and intrinsic than what we have called the modifications of the impulse in the neurotic character. What the precise nature of that change is we do not yet know, except that it must involve a considerable degree of desexualization.

In the neurotic character, on the other hand, as in neurotic symptoms themselves, the sexual nature of the impulse is retained and is merely disguised through the contact it has established with the ego. A further point of distinction is that whereas sublimations are derived only from the positive

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unconscious impulses, represent a continuation and modification of them, the neurotic character—again like neurotic symptoms—contains both elements thus derived and also elements composed of ego-reactions against the impulse. These reaction-formations are, of course, quite normal structures in themselves, though in many circumstances—through exaggeration, displacement, and so on—they may become pathological. In any discussion of neurotic character it is important to distinguish clearly between these two sets of elements composing it, the positive and negative ones respectively or—as I should prefer to term them—those derived from the appetitive and the reactive instincts respectively.

That specific libidinal trends in the unconscious could lend typical traits to the character was first shown by Freud in his original contribution on the anal character, one which was later greatly extended by myself and other writers. It was followed by the work by Abraham and Edward Glover on the oral character. The principal writers on the psycho-analysis of the neurotic character have been Alexander, Reich and Reik. From the very nature of the considerations adduced above, it was to be expected that types of character would be met with corresponding to the various psychoneuroses and this is found to be so. Perhaps the best recognized is the obsessional or compulsive character where the alterations of attitudes of doubting and of "mustness" so typical of the obsessional neurosis may permeate the whole of the subject's thinking and doing. In the present paper we are concerned with the character correlative of the anxiety states, whether anxiety neurosis or anxiety hysteria.

Anxiety itself, as distinct from normal fear, is always a psychoneurotic symptom. Its presence in a mental state, whether acute or chronic, slight or intense, does not therefore in itself justify us in speaking of an anxiety character in the strict sense of the term, even though in popular parlance we may rightly say that a given person has all through life an anxious disposition. Nor do defensive reactions against anxiety justify us in speaking of an anxiety character so long as these remain localized, as they do in phobia formation.

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When, then, may we designate any personality as an anxiety character? The answer I should give is only when both the anxiety trend and the reactions against it are built into the structure of the personality as a whole. Before defining what this entails it will be necessary to consider shortly the significance of anxiety itself.

In the oral and anal characters, primitive attitudes have so permeated the personality as to result in its tending to treat various situations in life as though they were acts of eating or defaecating. In other words, primary impulses are absorbed into the personality and thereupon influence the rest of it. In what sense can we say that this is true of anxiety? Until quite recently Freud has always held that anxiety was directly derived from libido, this being converted into anxiety through the effects of repression. At various times in the past twenty years I have had occasion to criticize this view as being an hypothesis for which there was no direct evidence and which biological considerations made highly improbable. It seemed to me that anxiety, whatever its clinical context, could only be one of the manifestations of the fear instinct, one which would belong to Freud's group of "ego instincts" as distinct from libido, to the reactive and not to the appetitive instincts. In his volume *Hemmung, Symptom und Angst* Freud has come round completely to this view so far as the anxiety of the psychoneuroses is concerned, though he still maintains the older view is valid in somatic situations. In a paper read this year before the Psycho-Analytical Congress at Oxford I have, on the other hand, tried to show that what might be called the biological point of view is applicable to the somatic situations as well, and if this proves to be true it must greatly affect our conception of the anxiety character.

Freud makes the very useful and important distinction between what he terms "signal" anxiety and "traumatic" anxiety, corresponding pretty well to the anxiety of the psychoneuroses and that of the neuroses proper respectively. He considers that the former, whether it appears in the form of general apprehensiveness or, more typically, in that of localized dreads, is an anxiety produced by the ego with the deliberate

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purpose of warning the personality that a situation is developing which, if not checked, may become intolerable; the nature of the intolerability we shall consider in a moment. In this respect its function might be likened to that of the super-ego and it is plainly a defensive one stimulated by the approach of a certain danger. The "traumatic" anxiety on the other hand, develops when the danger itself is present, the condition for it being an unbearable amount of libidinal excitation which for various reasons cannot be discharged. As was remarked above, Freud still holds that in this situation the pent-up libido is somehow converted into anxiety and that the later "signal" anxiety of the psychoneuroses is, so to speak, conjured up so as to guard against the recurrence of the intolerable situation. I think it possible, however, to regard this intolerable situation not as something ultimate, but as one capable of further analysis, and to specify the danger element in it against which the anxiety would be a mode of defence. The danger in question I find to be the exhaustion of excitation which must ensue if stimulation be carried beyond a given point without adequate opportunity for efferent discharge. This state, to which I have given the name "aphanisis," is tantamount to the ego being completely deprived of the capacity for libidinal functioning: It is a castration effect on a grand scale. According to this doctrine the ensuing anxiety would be, just as in the psychoneurotic situation, a purely defensive reaction on the part of the ego, a part of the general biological function of the fear instinct.

In the permeation that results in an anxiety character we should, therefore, seek to divide the component elements into two broad groups, those derived from whatever agents tend in the direction of the primal danger, ultimately aphanisis, and those derived from the anxiety itself. Unfortunately, however, the matter is by no means so simple as this, for a large number of neurotic mechanisms are derived from secondary reactions to the primary reactions themselves. The matter can perhaps best be illustrated by reflecting for a moment on the cognate themes of guilt and hate. Both of these are plainly of a reactive nature, hate being itself a reactive instinct and guilt

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a more complicated product having the obviously defensive function of inhibiting various impulses that might evoke danger or disapproval. Now analytic experience shows that any of these defensive reactions, created to protect against something intolerable, may in turn become such a burden to the ego that the latter has to generate some fresh reaction, of a secondary kind, to shield it from the pains of the primary defensive reaction: the savior, as so often in ordinary life, becomes so objectionable that one has to be saved from him. For example, guilt may inflict such misery in its endeavors to protect the personality from some primary danger that the personality finds it necessary to ward off the pain of guiltiness. A common way of doing so is to develop hatred of whatever person has got connected with the troublesome guilt; most hatred in the world arises, in fact, in this way. Instead of feeling guilt in respect of a supposedly disapproving person, one regards him as a tyrant who can thus be justifiably hated as being in the wrong.

The constituents of an anxiety character have therefore to be divided into three; namely, one positive trend and two negative reactions, the latter being primary and secondary respectively. Let us now consider these in order. We have first to ask what situations will produce anxiety, and then what factors will decide whether this will express itself in the pathological symptom of anxiety or in the complex we call an anxiety character. The first of these questions is easier to answer than the second. Anxiety arises whenever there is enough tension from libidinal excitation that is not being discharged. This degree of tension may be approached, therefore, either from an increase in erotic excitation or from the functioning of whatever opposes the discharge of it. Of the familiar matter of direct erotic excitation, though a complicated theme in itself, it is not necessary to say anything here, but it is worth calling special attention to its indirect aspects.

Trouble often arises when the *sublimations* of a libidinal impulse are over-stimulated by the exigencies of life, either absolutely or relatively to the amount of obstruction present. A very common example of this is when someone is called on

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to think or act rapidly in several ways at the same time. With many people this very factor of complexity is enough to overtax them and produce a state of bewilderment, distraction, embarrassment or perhaps unreflective impulsive action. They become what is colloquially known as "hot and bothered." Indeed, there are few better tests of a person's capacity to sustain excitation, which means nothing less than his mental stability, than is provided by observing how cool-headed he will remain when a number of calls are made on him at once. Those who have to devote a considerable proportion of their mental energy to maintaining their repressions have correspondingly less to apply to such emergencies and are, therefore, prone to develop in the circumstances some manifestation or other of anxiety. We know, of course, that in such tense moments all sorts of other reactions may appear besides that of anxiety, such as signs of impotency, regression to the perverse pre-genital activities—one may instance the characteristic anal sense of rush in this connection—but we are not concerned with them here.

It was remarked above that the breaking point of stability may be approached either by excessive stimulation or by the over-functioning of whatever opposes discharge. Except within the first few months of life the main obstacle is internal prohibition, commonly accompanied by a sense of guilt all of which may be entirely unconscious. In the last analysis all libidinal privation may be reduced to two elements, a threat to the genital organ or to the accessibility of the loved object. Obviously such threats may be brought about in a very large number of ways. To anyone with an active castration complex the situations that can symbolize this danger and thus reactivate the fear are endless: any serious thwarting, the threat of a surgical operation, the loss of a treasured possession, and so on. The other element of privation may be brought about by external accident, such as death of the loved object, but much oftener by occasions—slights, rebuffs, etc.,—that give rise to doubt about the extent or certainty with which the person is loved; naturally anyone whose potency or sense of security has become bound up with the attitude of the desired

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object will be correspondingly sensitive to any variations in this attitude.

So much for the first two constituents of the anxiety character—the positive trends and the primary reaction; namely, anxiety. On what now will it depend whether this anxiety will remain a general one, what is called a free floating anxiety, or become localized under the protection of a phobia mechanism, or, finally, will become absorbed into the personality as a whole and constitute this into an anxiety character. Here it is easier to ask questions than to answer them.

Is it, for instance, a sign of a stronger ego when it repudiates the anxiety as it does in the case of anxiety symptoms, or when it accepts it, as it does in the anxiety character? In the latter event it is as though the conscious ego agreed with the unconscious part of itself that proclaims the imminence of danger. It then develops an attitude towards life—essentially, of course, towards people—which is based on the conviction that life is hostile to it, that it is full of dangers that have to be guarded against. The result may be either a generally timid character, one at times not far removed from the symptomatically apprehensive one, or a firmer one that can be described in terms of cautiousness. That the outcome is influenced by non-individual factors, racial, historical, climate, etc., is suggested by the geographical distribution of these variants. It is for example, notorious that the Teutonic inhabitants of the north of Great Britain are usually more "cautious" than those of the South, and that general apprehensiveness is a very frequent characteristic of Jews in whatever country they live.

We have at last to consider the secondary reactions that go to make up an anxiety character. By this we mean reactions that are developed in order to deal with the anxiety itself when the quantity of this is so great as to become objectionable to the personality. The two best recognized of these are guilt and hate. The precise relations of guilt to fear are still so obscure that I will not embark on a discussion of them here. One has first to decide, for instance, whether guilt is a reaction to anxiety, destined to shield the personality from this, or whether

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it is a primary reaction, parallel to anxiety, against the same positive trends that lead towards the dangerous situation. What is certain is that no considerable quantity of anxiety is ever found clinically, either as a symptom or in character formation, without a notable amount of unconscious guilt being also demonstrable by analysis, and, further, that the guilt and anxiety are so intimately connected with each other that to resolve one means to resolve the other.

Much better understood is the relation of hate to anxiety. There is no doubt that hate constitutes an efficient guard of the highest order against anxiety. The two commonest manifestations are anger and irritability, corresponding to acute and chronic situations respectively. One might illustrate this from the familiar field of motoring. We have all noticed how a sudden danger makes a driver want angrily to curse the other fellow and how he in this way conceals—or to the psychologist reveals—his panic. Similarly if a "clutch and brake passenger" (one who presses his feet on imaginary clutches and brakes in emergencies) is subjected to long enough strain he will tend to conceal his apprehensiveness under a show of irritability. A good deal is known about the meaning of the hate reaction being prominent in character formation. It indicates a fixation at the pregenital anal-sadistic level and signifies a precocious development of the super-ego during this phase of libidinal evolution.

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The Hysterical Character

By Fritz Wittels, M.D.

There are numerous detailed descriptions of the hysterical type to be found in text-books and monographs. Clean-cut, circumscribed psychoanalytical presentations, however, are lacking. The following summary is the result of clinical observations of hysterics. In accordance with the suggestion advanced by Helene Deutsch and other analysts, we distinguish conversion hysteria, spasmodic hysteria and anxiety hysteria. Anxiety hysteria leads us to the subject of phobias, this essay, that is to say, to the *hysterical type,* in so much as there often develop no specific symptoms, yet form the nucleus of a fearful hysterical character.

Hysteria appertains to woman as fear does to the child, and coercive mechanisms to man. It is true that coercive conditions in the case of women and hysteria in the case of men are of frequent occurrence. They occur on the basis of the congenitally constitutional bisexuality common to both, and of those pregenital phases of development which as yet are unaware of the difference between the sexes[1].

All the activities of hysteria, infantile and feminine as well as creative, show play characteristics. Their accomplishment is not stable; it is unreliable, and subject to numerous disturbing influences owing to the fact that the masculine coercive moment is missing: the compulsion to completion and to permanency. The achievements, momentarily, exert a magic power, only speedily to dissolve, like a photograph which has been well developed but not fixed.

As an actress, the hysteric is capable of achievements that

[1] My observations, which are soon to be published, have led me to conclude that the line of development leads from the child over the woman to man, and over him out to the desexualized intellectual creator, i. e., the civilized human being. The point of fixation of hysteria lies between child and woman. The line of development, as I see it, may be represented by a circle which leads back to the child behind the creator. The hysterical type is specifically feminine, infantile and infantile-creative.

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cannot be surpassed. But she is unreliable, and at times will prove to be unsupportably bad in the same or some other rôle. What is known in a lady's social life as *"journalière"* is hysteric. Even as a saint the hysteric cannot be relied upon, and occasionally lapses into the diabolic. As a loving woman she represents a veritable martyrdom for the serious, compulsive male who, enwrapped in love and enjoyment in an hour of happiness, sees himself betrayed the following day[2].

The hysteric character never frees itself from its fixation on the infantile level. Hence it cannot attain its actuality as a grown-up human being; it plays the part of a child, and also of the woman. The hysteric person has no actuality, she (or he) confuses fantasy and reality, that is to say, allows the law of the "Id" to enter into the ego.

The coercive type, too, reveals the invasion of his ego by the unreal. He, however, keeps this material neatly separated from the nucleus of his own personality. He confronts these actions with dignity, almost with solemnity. The hysteric has amalgamated the chaotic portion of her personality—which psychoanalysis since 1923 designates as the "Id"—in an indissoluble community with the ego. Hence all that the hysteric undertakes, thinks and strives to attain, whether real or unreal, is hard to understand, and still more difficult to bound scientifically.

She can do all save one thing: she cannot be compelled, she cannot compel herself. In her the coercive masculine element is not sufficiently represented. In a psychoanalytic sense she is a castrate, and when she develops symptoms she shows this plainly. When she shows none, the castration can easily be deduced from her behavior. In her symptoms and behavior, which are meant to compensate for the phallus, she expresses her lack of the phallus. What she creates is continually cast off again, as soon as she realizes that it is deficient, i.e., unphallic. No sooner has it been rejected, however, than something new must

[2] There are numerous literary examples to support this contention: Shakespeare's Cressida, the Abbé Prévost's Manon Lescaut. And also of male hysterics, such as Oscar Wilde's Dorian Gray.

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be undertaken. This accounts for that restless hysteric creative power to which human culture owes so much[3].

Since psychoanalysis has recognized the significance of the father, we notice reactions to the father problem on the part of all neurotics. There have been conditions and even cultures without a father. What the neurotics and types of those days were like we do not know. The hysteria and coercive neurosis of this day appear to us as reactions against the intrusion of the father and the paternal cult. The coercive neurotic fights against the compulsion of the superego with a species of passive resistance. He carries out, with ridiculous and paralyzing exactness whatever is demanded, and even what is not demanded. The hysteric has diluted her father-concept by a hundred thousand to one. She varnishes all that she does with her superego—no more than breath-thick—but as a consequence the reality and the terror of the superego are wellnigh lost. The coercive neurotic has too much direction—the hysteric has none whatever and turns in a circle.

The actual model of the fantastic creations of hysteria is the birth of the child. To achieve this most feminine of all achievements the masculine coercive rhythm cannot be dispensed with. It is—in the form of the coitus—the male contribution. The conversion of the act into the flesh and blood of the new-born babe is what the woman contributes. The hysteric impregnates herself, and in place of an actual child there then comes into existence a child of her fancy. This is more than a comparison. The imitation of an actual pregnancy by numerous abdominal symptoms is a phenomenon with which all physicians treating hysterics are familiar. In the search for the phallus the hysteric's nose, her arms and legs, which incline to paralysis or to excessive activity, become symbols in these conversional symptoms. Her mouth becomes a symbolic transference from below to above. Her blush is an erection. The fit of hysteria has long ago been seen through, and revealed itself as a coitus.

[3] In Goethe's *Faust*, Mephisto says: "All that comes into being deserves to be destroyed." Hysteria acts in accordance with this principle. Mephisto's conclusions: "Hence it were better that nothing were to be given birth," is unhysteric, a masculine coercive idea. Mephisto is an agnostic. Hysteria has no doubts. Her motto is: "All that comes into being deserves to be destroyed, and therefore something new must continually be created."

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Though less sensational than the attack of hysteria, psychoanalysis shows up just as clearly that all this restlessness which is known as hysterics is a perpetuated and purposeless act of creation.

The ego of the hysteric overflows the bounds of individuation. Since the compulsion of the real plays but a small part, the whole external world is drawn into the ego. It is amalgamated with the ego of the individual. What psychoanalysis terms "transference," therefore, is boundless and brimming over in the case of the hysteric type. Everything belongs to the ego and is cherished. The transference of the ego, the investment of the external ego by the libido does not even stop at the boundary between soul and body. The body of the hysteric—in a manner strangely obedient—is associated with her psychic actions. It speaks in the idiom of the organs, it has an opinion, wishes and feelings, and it expresses them.

The dread of pregnancy—in an ambivalent sense always connected with the wish to become a mother—may, therefore, in one case assume the form of claustrophobia, the fear of enclosed spaces, in another the fear of abdominal pains and swellings (pseudoappendicitis, pseudoulceration, dysmenorrhoea vomiting and nausea. Phobic conditions and discomforts alternate. So long as physical suffering exists, the hysteric feels that she is freed from her fear, and shows what Freud, together with Charcot, have called, "la belle indifférence des hystériques" (the superb indifference of the hysteric).

One of my hysterical patients, a young man who wished to share his father's life, and who to this end—quite unconsciously—imagined his own metamorphosis into a woman, suffered for years from ulcer of the stomach which was vainly treated dietically. When his father had a child in second marriage, the ulcer disappeared and a phobia took its place. The transference of the favorite subconscious wish to his own body no longer sufficed after the shock he had received, and the ulcer betrayed its psychic character in the form of fear, excitement and dislike of life. *Conversional hysteria* turned into *hysteric phobia.* Nor did *hysterical attacks* fail to put in an appearance, since the

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young man's fear at times rose to veritable orgies of contemplated self-destruction.

This case, with its hysteric symptoms, oversteps the limits of a presentation of the hysteric type. Yet there is no hysteric character, who does not, on occasion, develop symptoms. And how could he fail to exploit his ability to draw his own body into the psychic nexus, in order to save himself conflicts and their accompanying psychic phenomena? They are metamorphosed, and thereupon cease to torment the hysteric.

Orgy and ecstasy are hysteria's veritable realm. In a state of ecstasy the boundaries between the ego and the external world, between body and soul, are blurred. This is exactly what characterizes the state of intoxication, in which all clean-cut boundaries, even those between desire and disgust, between joy and pain, between the permitted and prohibited, lose their outline. The hysteric desires ecstasy. Therefore he readily and with enjoyment abandons himself to the use of alcohol and all other intoxicant poisons. In some cases he realizes the danger and tries to avoid it, but notwithstanding this, the hysteric type represents the main contingent to the army of morphine—and other addicts.

Attempts at suicide are frequent in the life of the hysteric. The coercive type *insists* on living. In addition, he is sufficiently convinced of the ego-aliency of death to keep far away from it. But the hysteric does not take life, death or suicide seriously. By a hysteric attempt to commit suicide we understand one which is meant not to succeed from the start. It is a dangerous game played with reality, and many a hysteric who leaps from a window and is killed, neither wished nor did not wish to die. Nevertheless, there is a bit of compulsion even in toying with suicide, and since this feeling should be foreign to the hysteric type, we realize that a one hundred per cent hysteric character does not actually exist. It is always alloyed by a more or less important share of compulsion—that is masculinity. Nor is it to be expected that in the very case of the hysterical character the law of bisexuality will lose its validity.

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The Compulsive Character

By Bertram D. Lewin, M.D.

With the term compulsive character or compulsive personality (German: *Zwangscharakter*), we designate those individuals who, though showing few or no symptoms of a compulsion neurosis in the narrower sense, yet have a character and a way of life identical with or similar to the character and way of life of the compulsion neurotic.

It will be seen at once that this definition is entirely descriptive, for it tells us only two things about these individuals: they are like patients with a compulsion neurosis in a general way, but differ from these in not having a feeling that they are ill, in not having what they consider symptoms. Plainly such a conception as the "compulsive personality" is a derived one, derived in fact from our experience with compulsion neurotics, and can make no claim to special theoretical value. Indeed, there are physicians who would make no distinction between compulsion neurotics and compulsive personalities; for them the latter have rationalized neuroses, or compulsion neuroses under cover (*"rationalisierte oder verhüllte Zwangsneurosen"* Alexander). They represent, to use the same author's terminology, "asymptomatic neuroses."

Persons with this character rarely come to the physician because of dissatisfaction with it, but like persons with an unsuspected diabetes who present themselves to the physician with an infection, they will consult him for some disharmony in their work or marriage, and he will find that he can do no more for their presenting difficulty without "treating" their character than his colleague in internal medicine could do for the infection without treating the "laboratory" diabetes. It soon becomes evident that the character is as intimately related to the problems as the diabetic tissue alteration is to the infection. In both cases it is the patient as an individual, with all that is amiss, who must be treated.

The analytic approach to the character is no different than the analytic approach to the symptom. Character traits, or at any

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rate many character traits, have the same psychologic structure as neurotic symptoms; they are modifications of the ego set up to repress or ward off unwelcome instinctual urges. They are known as reaction-formations. Other character traits represent ego-acceptable modifications of these same urges—the sublimations. It is indeed a generally known fact that during psychoanalysis character traits may be modified, may disappear, or may be replaced by others, and these alterations in the character can be correlated with alterations in the symptomatology and sexuality of the patient. Ferenczi's epigram is quite just: from the standpoint of the psychoanalyst, the character is a neurosis.

To learn the deep psychological meaning of the character traits in a compulsive personality, we can best begin by considering the deep psychology of the compulsive symptoms. The compulsion neurotic feels cravings, or is obsessed by ideas foreign to his conscious personality: they are either pointless, or are such as offend moral or aesthetic feelings. Phantasies of killing some beloved person, of having sexual relations with a near relative, or of putting faeces in the mouth would be outspoken examples of such obsessions. On the other hand, other obsessive impulses are outspokenly moral or social; they frequently exaggerate the demands made on the individual during his up-bringing. The compulsion to wash the hands countless times during the day is an example of this class. Apparently pointless actions on analysis turn out to be symbolic of one or the other type of compulsion. To use our present-day terminology, the first type of compulsion is carried out by the ego at the behest of the asocial instinctual part of the personality—the id.

The second over-moral or over-aesthetic activity is executed by the same ego at the behest of the individual's unconscious conscience—the super-ego. To run counter to the super-ego and omit, for example, the ritual hand washing, would throw the individual into a state of fear or anxiety. Carrying out this act allays or wards off the anxiety, which is really bad conscience for gratifying unconscious instinctual urges. Behind the fear of the super-ego, genetically, is a fear of the father, the earliest prototype of conscience, the first upholder of the demands of

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society. Sometimes instinctual gratification and conscience gratification will be condensed into one act; for example, symmetrical washing of the knees, which is "cleansing," may at the same time be a substitutive masturbation; or a moral compulsion may precede or follow one of the other type in order to cancel or repeal it. As the neurosis progresses, more and more compulsions come to give gratification, and ultimately the victory goes to the id.

The neurosis begins as an attempt at defense against the libidinal wishes represented in the Oedipus complex; in spite of the castration threat the incestuous objects of these strivings remain, but the genital quality of the relations is lost, and supplanted by the older sadistic and anal strivings—or to put it more technically, there is a regression from the genital to a pregenital level, the anal-sadistic one. It is assumed that constitutional factors have been operative in these persons so that pregenital interest in sadistic and anal functions was unusually well developed. Such persons were trained to neatness, propriety, and gentleness either with great difficulty or very harshly. When confronted by genital urges, they try to bring to bear against these the prohibitions found useful in their training in neatness; they also try to get around these prohibitions as they sought to overcome the will of those who trained them in cleanliness. Thus it is that the compulsion neurotic can clean himself from masturbatory (i.e., genital) guilt by washing his hands, a method he learned when dealing with his pleasure in getting dirty. This regression to the anal-sadistic level, with its substitutions of the pregenital strivings for the genital ones, brings it about that hate impulses and impulses to soil or debase regularly appear wherever there would be, at the genital level, a purely positive attitude to the object. In this way, the libidinal relations of the compulsion neurotic, whether to persons or to more abstract objects, are ambivalent; those he loves, he also hates. The over-moral and over-aesthetic character traits or symptoms are built up to help ward off the anal erotic and sadistic urges, represent in some way the opposite of these, and are "reaction-formations" or over-compensations for them.

The person with a compulsive character but without true

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compulsions or obsessions as such has been through this same development, perhaps less quantitatively pronounced than in the neurotic; his ego too has become altered and shows the character traits which as reaction-formations serve to ward off sadistic and anal erotic strivings. However, he has been able to a greater extent to sublimate his id tendencies, that is, to modify them to conform with the demands of his own ego and with the demands of his environment. In studying the character of such a person, then, we should see how these reaction-formations and sublimations affect his attitude to his work, to abstract questions, to standards of behavior, to money, to authority, and to other persons generally.

. It is a striking fact that, to speak from a purely descriptive standpoint, compulsive personalities are usually above the average in intelligence. · They are also usually very ethical in their principles, sometimes to the point of being ascetics. They are under fortunate circumstances hard workers, conscientious, formal, punctual; yet in spite of this, they show a tendency to procrastinate and draw out their labors as long as they can. Nor are they, in spite of meritorious and apparently useful traits apt to be successful financially, for it is their tendency to choose unremunerative occupations, either those in which routine plays a large part, or else those in which the immediate result is not directly well rewarded economically, such as pure scientific research. It is their hope, however, that ultimately, perhaps posthumously, recognition will come to them, or that some prestige and power will accrue to them.

We are all acquainted among our medical colleagues with persons of the compulsive type. They prolong their interneship and hospital training indefinitely, and then perhaps choose some poorly paying research position. Though irked by hospital routine they nevertheless write long detailed histories, and employ all possible methods of investigation, even though they may merely be obviously time-wasting and beside the point. In clinical practice these persons are surgeons who are meticulous in regard to the details of technique, internists who never quite finish a physical examination, repeating their auscultation etc., perhaps without coming to a definite diagnosis, neurologists

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who can never quite decide whether a reflex is slightly exaggerated or not. Laboratory men may become lost in perfecting some trivial point in technique, which when perfected brings them no gain in the way of increased efficiency or knowledge. A tendency to indulge in irrelevant detail may also delay the practical execution or decision. A lawyer will be meticulous as to the details of his documents, correct and re-correct them, look up the law on cases having only a remote connection with his immediate problem, and in spite of great correctness and perfection in technicalities, still not have found the law appropriate to the case.

Such instances show very well some of the sublimations and character formations of the compulsive personalities. Their occupation represents a sublimation of instinctual (id) tendencies. In both the physician and the lawyer, these sublimations give the individual a chance to manifest ego-acceptable sadistic urges. The physician is permitted by his own standards and by society even to inflict pain in a good cause; the lawyer is permitted to "fight" his legal colleague or the party of the opposite side. At the same time they must serve their patient, client, or society, or even more generally the internalized representative of society, the super-ego. The fact that they "do good," "promote justice," etc., is this service to the super-ego.

In an entirely successful sublimation the ego's duty to the super-ego and to the id are happily settled in smooth efficient activity. But in the persons in question, this is not quite the case. The work must satisfy a larger quantity of id strivings than usual, and it is consequently treated to a certain extent as if it were really the unsublimated pleasure striving: the overconscientious, meticulous, burdensome features are therefore accentuated so that the complementary demand of the super-ego for penance may be satisfied. At the same time the obvious triviality of the work may represent an unconscious persiflage of the demands of the super-ego, as if to say, "this is the silly sort of thing required of me."

Psychoanalysis has shown that work is a homosexual sublimation; a man, in obeying his super-ego, in doing his duty, is using those energies which as a child were included in his pas-

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sive relation to his father. But the sadistic anal relation to objects which maintains in the compulsive personality brings with it an ambivalent object relation to the father also, and this is manifested by signs of unconscious hostility to the work, resistance to obeying the super-ego, and to doing one's duty. It is thus that we may understand the double attitude to work. A sense of the unconscious hostility lurking behind the work leads to the constant perfecting and correcting, technical compliance with rules, to make sure that the hostility does not really break through in some unconscious slip. The procrastination and detailed work also serve to lengthen the time put on the work: work also holds libidinal gratification and therefore is prolonged through as many means as possible. Since the work is usually a sublimation of anal strivings the procrastination may well be compared with the infantile attitude towards the "work" of defecating—in both instances the aim is pleasure through retention.

Compulsive personalities always have an attitude to money that goes beyond any rational principle. They carry with them some of the psychology of the child, who does not earn money (that function being a prerogative of the father), and to whom money either comes as a gift or as something stolen. In other words an unconscious sense of guilt may attach to the entirely necessary desire to earn money. As is well known, this represents an anal erotic manifestation. Compulsive personalities therefore choose professions, or in their work demean themselves, so that they may remain free from "dirtying themselves" with filthy lucre, and not compete against the father. A frequent habit of such persons is to accumulate money without investing it usefully; thus they avoid competing (i.e., fighting), and at the same time indulge their anal erotic wish to amass.

Their relation to authority is usually quite characteristic. They ask advice of some person (usually a father figure) before making decisions, even though this person is not necessarily more competent than themselves. They usually engineer it so that this person's opinion will be the one they themselves wish. For the moment this person is put in place of the super-ego, so that he may give them authoritative permission to carry out

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some piece of behavior about which otherwise they would have scruples. The scruples were based on the fact that the decision in question would lead to an unconscious sense of guilt—which is relieved by the super-ego's acquiescence. Ostensibly the question might relate to embarking in some business enterprise, or to getting married, etc., but in the depths of these personalities there is a qualm of conscience as to whether these activities might not represent some hostility to the super-ego, or secretly gratify some defiance of the father. So authoritative reassurance becomes necessary. Furthermore, if the advice given should be opposed to the individuals' wishes, they by no means always follow it. They can always find rational ways of disposing of it, or can induce the adviser to change his mind. The latent hostility to authority may also be gratified by the trouble and time the adviser is necessarily put to. It must be remembered, however, that both the need for authority and regulation and the resistance to them are equally real, and are a manifestation of the ambivalence described above.

The reaction-formation against anal wishes may be seen in these persons' attitude to cleanliness. In this respect they are very careful, with their person and with their belongings. Yet sometimes the cleansing process may be more formal than real, and in one or two ways allow some of the repressed pleasure in getting dirty to crop through. Thus, as Ferenczi has reported, a woman with strong cleaning compulsions spent most of her time cleaning—the water closet! A general insistance on cleanliness does not keep these people from heartily enjoying Rabelaisian jokes about excreta and defecation, even though they may frown severely on jokes dealing with genital sexuality.

Freud has recognized that the compulsive's acute thinking capacity may be due to an early strengthening of the curiosity impulse (Wisstrieb), a modification of sadistic strivings. A reaction against anal strivings seems to give form to a certain type of thinking commonly met with in these persons, which might be called "clean thinking." It can be characterized as a pre-occupation with abstract conceptions and problems of a philosophic or abstruse nature: what is truth ultimately? what assurance have we that we know things? what values are abso-

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lute? In arguing out these points, the thinking is divorced from the concrete, material, and worldly facts; it is kept "clean" by isolation from the grime of data. That such thinking also serves to separate the intellectual processes from phantasy, and thus to encourage the development of doubt is apparent.

Thus certain scientists in a report will begin with broad metaphysical and *a priori* discussion, and having worked out their theory with no reference to empirical data, will suddenly plump down a vast quantity of material in which it is impossible to find any theoretical significance or orientation, evidently with the tacit assumption that this crass empirical mass somehow substantiates their theorizing. In point of fact here again the thinking is kept clean by divorcing it from the accumulated material.

Since their thinking evidently has some phantasy value for them, such persons tend either to dogmatism, or else take refuge from it in a sort of "negative dogmatism," an exaggeratedly critical attitude towards all theorizing. Just as open-mindedness may degenerate into credulity, so such skepticism may become negativism. It is interesting that during analysis those very persons who are most attached to *a priori* principles and who most crave absolute certainty and guidance are the ones who will have the most to say about the "dogmatism" of the analyst. Their arguments then usually show that their real grudge is against the analyst's inconsistencies; they crave a dogmatism against which they could rebel. The arguments are *ad hoc,* and like those of a good lawyer designed to win their case. Where such persons are not too personally involved, their ability to see both sides, their conscientiousness and capacity for detail may give them a valuable judicial temperament.

In these otherwise perhaps too rationalistic persons, there is usually to be found some banal superstitious belief or practice. Freud has explained the superstition of such persons as being dependent on their over-personification of Fate. Thus, through chance or coincidence they may frequently be led to some act at variance with their general way of life.

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The compulsive personalities may be collectors, sublimating in this way the anal erotic pleasure in amassing. Other part strivings may enter to determine the nature of the collections: with art collections voyeur strivings, with cane collections phallic strivings, with china, pewter collections, etc., a urethral element originating in an interest in chamber pots. On the other hand a reaction-formation against amassing may lead to a Spartan simplicity in regard to possessions.

In the sex life in the narrower sense, there is extensive variety. In general, however, there is a relative impotency or lack of direct interest. Marriages for money or position are not uncommon. A splitting between sensual and tender aims is a common finding. But the sexual life can not be thoroughly dealt with in a brief fashion. Among practices pointing to unconscious anal phantasies, coitus *a tergo* might be mentioned.

Compulsive personalities make up a large part of psychoanalytic practice. As a rule, they come for some extraneous difficulty, rarely for any symptoms. Analysis usually reveals that there was a compulsion neurosis in childhood, generally between the ages of five and twelve (the latency period). Abraham has pointed out that manic depressive patients frequently show a compulsive type of personality during the intervals between the psychotic periods. The general impression that such types of personality are very common and indeed on the increase leads us into questions that can only be answered by a study of modern civilization—the civilization to which these personalities are adaptations.

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The Reactive Character

By A. S. Lorand, M.D.

Psychoanalytic investigation of the actions and symptoms of the neurotic have led to the unconscious motivations underlying them, and through these unconscious motivations, in turn, to a consideration of the entire personality. Consideration of personality postulates a consideration of character, and in this way a psychoanalytic characterology has been evolved.

The basis for psychoanalytic character differentiation was given by Freud in "The Ego and the Id." Personality development passes through a shifting series of identifications, and the ultimate character of the Ego (personality) is, as Freud says, "the residue of the series of renounced object-cathexis."[1] This means that the examples set by parents and educators are absorbed and form that part of the character which constitute the Super-Ego. The relation between the Super-Ego and the rest of the personality is the same as was the original relation between the child and the parent.

The conflicts which may pre-occupy the child as the result of his ambivalent emotions toward his parents will appear in later life as the conflicts between the Ego and the Super-Ego. Freud pointed out first that "the relation of the Super-Ego to the Ego does not suffice with the command *'So (like the father) should you be,'* it includes also the stricture *'So (like the father) you must not be' . . .*"[2]

In the analysis of certain character difficulties we find that the difficulty lies in the tension between this desire to become like the parent and the prohibition not to become like him.

The following cases, briefly given, may serve as clinical illustrations of this theoretical conception.

I. A young man in his early thirties was in analysis because of sexual difficulties which were mostly the result of his character development. He was the only son of his parents

[1] Freud: Gesammelte Schriften—Vol. VI—pp. 373.

[2] Ibid: p. 378.

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(he had an older sister). The father had always displayed a domineering attitude toward the whole family, and this attitude persisted even in his old age. From his earliest memories, the patient had always been in terror of his father, even the sound of the father's voice when he came home had sometimes driven him into a panic. In describing his father, he referred to him openly as a tyrant. He described him as being extremely powerful in appearance, as never relaxing his watch on the patient. From this tyranny the escape naturally led to the mother by whom, in contrast, the patient had been spoiled to an extreme degree.

The patient's social environment was a constant repetition of his home situation. Although occupying an important and well-compensated position, his manner toward his superior was the same timid, subdued attitude he had developed in his dealings with his father. Although inwardly full of revolt, he displayed only a tender, mild, and to a certain extent, what could be described as a masochistic attitude. He expected and, at times demanded during the treatment, that he be kept under strict rule, to be "whipped" (as he said) to do things. In this form, it would be the repetition of the childhood experience of being whipped by the father, except that in this situation the attitude was created by the unconscious guilt feeling. In addition, he was continually afraid of criticism, and weighed every situation beforehand in order to avoid the possibility of it. This was his feeling also in his attitude toward women, who preoccupied his fantasy, but with whom in actual relationship he could achieve only ejaculatio ante portas. The partial impotentia was directly linked up with his fear of his father and the guilt attached to his incest wishes which had been present even at the time of puberty. The retention of this subdued character involved the aim, in his unconscious, of avoiding difficulties which would have resulted from following the father's example. It would have meant being the rival of the father in many ways and would have brought, also, the dangers involved in sexual matters that would have arisen out of a complete development after the example of his father.

There was present in his unconscious the other extreme, the

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desire to be like his father—athletic, rough, the possessor of acrobatic qualities, a sharpshooter, etc. But in reality, he became the exact opposite—physically aesthenic, mild-mannered, neat in appearance, interested only in fine, cultural things, and keeping far from all possible roughness in any form.

II. A young man in his twenties had come to analysis to find treatment for slight neurotic complaints. He displayed, as his fundamental character weakness, the inability to cope with the constant demands of his social life.

He was the youngest son of a poor family, and had attained considerable wealth through his own efforts. Arrived at this stage of economic comfort, he developed his neuroses as an unconscious means of protection from advancing still further into success, which would have meant more and more difficulties for him. From early childhood on, he had had the ambition to become rich as a compensation for the miseries that had been brought about by the poverty of the family, which he attributed to the father's incapability of supporting them.

He accomplished his childhood dreams and became, in every respect, the opposite of his father. This began with the relinquishing of religion, becoming a man of wealth and of the world, in contrast to the secluded habits of the older man. But in the development of all these characteristics as a reaction against his father, enormous unconscious guilt was involved, and it prevented him from fully enjoying his social position. Certainly this guilt led back as always, to the early Oedipus situation which represents, in the child's life, the first revolt against paternal authority and includes also the incest-wish for the mother. And inasmuch as in his struggle to achieve success a great factor was the desire to help support his mother, whom he had to thank for the little education he had received, and whom he loved lavishly, the repetition of the childhood situation was clearly present and the guilt feeling that resulted from it easily comprehensible. Particularly was this true because the realization of his childhood wishes included also the realization of taking the father's place. When he accomplished this, he became in this respect the opposite of

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his father—he provided all the needs for his mother, helped his younger sisters obtain an education, etc.

III. A man in his middle thirties, married, was in analysis because for the past few years he had been unable to concentrate on his medical profession as he had been able to do. He was continually playing with the idea of giving it up and of finding some commercial occupation. This difficulty led straight back to his personality development, although his personality was one that invariably made a pleasant impression and was pleasantly talked about.

He had a stern religious training, and all through school and college, in all the aspects of his married life, he was considered a model, but unconsciously he had the character of a revolutionary, and in analysis the mild, good religious habits showed themselves to be part of the reactive character formation in contrast to the father. His home environment had left him with impressions of an unhappy family life—his mother's continual troubles had driven her to compensation in religion. His father occasionally drank, had many quarrels, was an atheist, and somewhat of a ladies' man. All these had left their impressions on the child, but he himself had turned, on an external level, to the complete opposite. Unconsciously, however, he craved the same pleasures his father had had, and as he himself put it, there was a constant fight inside of him between "Dr. Jekyll and Mr. Hyde." His profession brought him many opportunities to indulge in his father's mode of life, and the stronger these tendencies became and rose out of his unconscious, the stronger his defensive had to be. The conflicts became so strong that it brought about the consideration of leaving his profession. Again, as in all cases, the whole conflict between his Ego and Super-Ego went back to the childhood Oedipus period, and it was a repetition of the revolt against the father and a desire for the mother, to whom he was deeply attached, to the extent that he had chosen his wife because of her resemblance to her, in stature, etc.

In all three cases the beginning of differentiation from normality was in the Oedipus situation, which had not been prop-

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erly resolved in childhood. Analysis showed that the emotions toward the parents were excessively strong, as a result of the parental attitude toward the child. In such cases the Oedipus situation undergoes gradual repression and in order to cope with it so constantly, a strong Super-Ego has to develop. Whereas, in a healthy personality, the ultimate character is a balanced mixture of the series of identifications, to which, in the case of a boy, the father has contributed the major part, in the cases under discussion the personalities were weak in their roots and the ultimate displayed character was to the greatest extent, the direct opposite to that of the father.

The identification with the father led to the "formation of a reactive Super-Ego" [3] under the domination of which the entire character developed.

It does not always follow that reactive character types show neurotic symptoms. They may adjust quite well. Extreme religious enthusiasts, self-sacrificing samaritans, ascetics may have developed their exaggerated mode of life as a reaction to some early influence.

In all reactive character formations, which, in analysis, are considered "neurotic," there will be displayed a strong adherence to childhood. Another major attribute will be a strong feminine element, which, can be readily understood if we consider the reactive character a reaction to the Super-Ego, knowing that the Super-Ego formation is to a great degree a result of the father—turning into the opposite involves, in some fashion, a stronger identification with the mother. Besides, the adherence to childhood already involves femininity, as adherence like regression to the childhood level, means running away from some difficulty, some hard task of reality. Being-child means being helped, being supported. The task of producing a healthy balanced personality will consist of a liberation of those early wedged-in emotions which turned the individual to a road of character development opposite to that of the father's.

[3] Reich: Der Triebhafte Character.

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THE NEUROTIC CHARACTER AS CRIMINAL

The Neurotic Criminal

By Franz Alexander, M.D.

A more exhaustive investigation of criminal personalities compels us, more and more, to take cognizance of the fact that a considerable part of those people who become lawbreakers should be regarded as psychoneurotic cases of illness. They are persons for whom the criminal act represents a way out of similar psychic conflicts, which we find characteristically existent in those who are suffering from a psychoneurotic malady. A criminal act of this kind is equivalent to a psychoneurotic symptom, and like it is principally determined by subconscious motives. In such cases we speak of a neurotically urged action (*neurotisches Agieren*). It is true that, between the neurotic *symptom* and the neurotically urged action, there exists the difference—especially important in a practical sense—that the neurotically urged action, in contrast to the neurotic symptom, consists of fully valid acts, often dangerous, so far as the human environment is concerned, but in any event always significant, whereas the neurotic symptom, in first instance, has only a subjective importance for the patient. To summarize: the neurotic symptom only indicates a change in the sick person's psychic apparatus, while the neurotically urged action is capable, like every other fully valid act, of effecting a change in the external world. The neurotic symptom is an *autoplastic* symptom; the neurotically urged action is an *alloplastic* act. Naturally, the neurotically urged action is not always criminally colored. It often consists only of motivated actions that are injurious, not so much to the environment of the one who does them as to the doer himself, and which may even have self-destructive effects. The neurotic criminal, therefore, constitutes a sub-group of that greater nosologic group of psychoneurotic human beings whose first and most marked characteristic is the neurotic urge to action. Years ago I suggested marking off this group, made up of those psychoneurotic sufferers whose principal production is symptoms, and I called them *neurotic characters*. Yet the

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expression *psycho-pathically impelled character* (*triebhafter Character*) would also be a proper designation.[1]

The idea of the neurotic character gradually, in the course of time, has arisen in the practical therapeutic activity of the psychoanalyst, and not until quite recently has it been exactly formulated.[2]

By this exact formulation that group of the psychically ill whom the psychoanalyist prefers to call neurotic or psychopathically impelled characters, has become one with a single-meaning definition, a diagnostically easily conceivable, nosological unit. But in no case has this group of pathological personalities been discovered by psychoanalysis. Descriptive psychiatry has for long been very well acquainted with human beings of this kind, and various authors have designated them by different names. Nowadays they are in most cases called psychopathic personalities. They are persons who, above all, are characterized by a certain negative quality, that is, that they are not included in some definite disease-group of neurotic or psychotic sufferers, and yet unmistakably seem to be psychically ill. They are diagnostically recognizable not so much by the aid of the knowledge of the pathological psychic processes that characterize them, but rather by the psychiatrically experienced vision. Many sub-groups are mentioned by psychiatrists. I need recall only Kraepelin's[3] impulsive types (spendthrifts, tramps, dipsomaniacs, gamblers) or the excitable, unstable, eccentric and socially inimical types of *Bleuler*.[4] Here, too, belongs the group of persons formerly classed under the head of *moral insanity*. The common attribute of these types, which do not seem to belong together in any very close sense is, besides the *negativum* already mentioned—that they do

[1] In 1925, W. Reich, in his monograph, *Des triebhafte Character* (Int. Pa. Vg., Vienna), described a number of types suffering from psychoneurotic maladies, which in no wise correspond to those types which I have called psychoneurotic characters. In Reich's cases we have a chequered mixture of symptoms occupying the foreground, while the characteristic neurotically urged action is not in evidence. It is for this reason only, in order to make possible a clear demarcation of the neurotic character, that I have retained the expression "neurotic character" in later publications, otherwise I find the term "psychopathically impelled character" more expressive.

[2] F. Alexander, *Der neurotische Character*, (Int. Pa. Vg., 1928).

[3] Kraepelin, *Lehrbuch der Psychiatrie*, J. A. Barth, Leipzig.

[4] Bleuler, *Lehrbuch der Psychiatrie*, J. Spanger, Berlin.

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not admit of any definite psychiatristic diagnosis—their well-preserved intelligence. The morbid relates only to the effective and actional life of these persons. Hence such expressions as *moral imbeciles, affective idiots,* etc. They act unreasonably, as though their intelligence had been destroyed. But observation shows that the intellectual functions are hypernormal rather than hyponormal. There has been a tendency, of late, to regard the malady from which they suffer as an abortive neurosis or psychosis, since many clearly betray hysteric, others manic-depressive and again others schizophrenic traits.

According to this conception they represent transitional forms to the out and out neuroses and psychoses. Especially instructive in this connection is the mixture represented by the appearance of so-called epileptic characteristic features with actual epileptic attacks. In part the impulsive actions carried out in the state of epileptic somnolescence may be regarded as an equivalent for the serious epileptic attacks. And as a result the terms hysteric, cyclothymic, schizothymic or epileptic characters originate.

The so largely discredited concept of "moral insanity" in this way is given a more scientific garb. I do not believe, however, that by pasting on some termination that makes an impression of exactness, such as "old" or "thymic," we do away with the difficulty of diagnosing individuals of this kind. The uncertainity and difficulty of such a diagnosis is practically important, especially in the case of forensic medicine, because these individuals often come into conflict with the existing laws. What would be needed to make an exact diagnosis would be—in place of the psychiatric description which takes into account only what has occurred externally—a more intimate knowledge of the psychic procedure which characterizes this group of beings. Psychoanalytical research which tries to recognize the individual psychic contents, i.e., strives for a causal psychology, has contributed much toward the diagnostic comprehension of these personalities. In the following pages I would like to present those observations and theoretical considerations which would possibilitate a more exact delimitation of this human type.

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The differentiation between the neurotic character and the classic symptomatic neurotic is, first of all, enforced by one's daily practice. Every psychoanalytical therapeutician knows these people, who go to the physician without any hard and fast symptoms, but who, nevertheless, either themselves feel that they are ill, or are called abnormal by those surrounding them. And it is then soon evident that these persons, in place of symptoms reveal something irrational in their course of action or in their mode of life. The analyst soon discovers that the same subconscious motives, trends, and impulse-demands which in the case of psychoneurotics lead to the formation of symptoms, in the case of these individuals determine their actions and their conduct in life. In this very respect they differ most noticeably from the true neurotics, of whom, in most cases, their inactivity in life is so characteristic.

The psychoneurotic system, of course, absorbs those powers which otherwise would lead to full and entire action. One of the fundamental signs of the neurotic symptom, according to Freud, is the fact that it is no full and complete action, but invariably the substitute for such a full and complete action. A psychic tension, a sexual urge or a hate effect, in the case of the neurotic symptom, for instance, in conversional hysteria, are carried off in the form of a functional disturbance, by an unaccustomed innervation uninfluenced by the will, or also by means of a sensory disturbance. In the case of compulsive neurosis, again, destructive, sadistically colored impulses are expressed by manical compulsive ideas, torn out of the interconnection of conscious occurrences. Or else these influence every-day actions, eating, washing oneself, dressing oneself, and these are given an exaggerated and symbolic importance. All these symptoms, however, have only a subjective, fantastic significance for the sufferer, and do not—like a full and complete action—effectuate in the external world any change calculated to satisfy these impulsive demands in an actual way. The mother who is suffering from a compulsive neurosis, and who feels an impulse to rise at night in order to cut her children's throats, is in reality a particularly over-anxious and self-sacrificing mother. And that druggist who was suffering from

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a compulsive neurosis for instance, and who felt impelled to take every bottle of drugs which he needed to prepare a receipt down from the shelf ten times, in order to convince himself that he was using the right one, is full of aggressive tendencies, yes, even homicidal tendencies where his fellowmen are concerned, yet is in reality merely an over-conscientious man.

If then the neurotic binds his ego-alien, subconscious impulses in symptoms that are innocuous so far as his fellow-beings are concerned, and which give him no more than a subjective, fantastic illusory satisfaction of these illicit wishes, these ego-alien impulses, in the case of the neurotic character, transform themselves into full and complete actions. In place of the neurotic symptom there enters the impulsive neurotic action. Herewith the demarcation between impulsive neurotic action and the neurotic symptom is established. The difference between neurotic impulsive action and normal action, again, consists in that the former is subject to the influence of the subconscious tendencies in a far higher degree than is the normal action. Or, inversely expressed, the influence of the conscious personality on the impulsive neurotic action is less than on the actions of normal human beings. Important in this connection is the fact that the power of judgment, the intelligence, yes, even the moral power of judgment are completely retained, yet are unable to exert a sufficient influence on the impulsive drives. It would seem, therefore, that the interconnection between the conscious personality and the impulsive drives is disturbed.

Thus in the case of these individuals, the inner conflict arises. The impulsive action, which is rejected, it is true, by the conscious ego, yet cannot be prevented, leads to remorse, condemnation of one's own course of action, and to the resolve, made again and again, thenceforward to begin a new life.

The large participation of subconscious motives in these actions explains what is irrational in these individuals' mode of life. That part of the collective personality, the conscious ego which, in the case of normal human beings—with the assistance of a proving by means of reality—helps adapt the demands of the drives to the given conditions of the external

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world, and, among competing impulsive tendencies that are compatible, stresses those which correspond to the dominating interests of the personality, this conscious ego has less influence on the mode of action of neurotic characters. And thus the irrational, the not-adapted-to-reality of their actions is brought about.

A second sign of the neurotic impulsive action is stereotypy in what they do. These persons, strange to say, again and again experience the same vicissitudes; as Freud has put it—a blind demoniac pull seems to determine their fate in life. Here one might object that every man possesses a character of some kind, which determines the character of his actions. But the normal human being is more plastic in his mode of action. He learns from the errors made by him, and changes his mode of action to suit whatever situation may exist at the time. The very thing that constitutes the function of the conscious ego is that, by the aid of a proving and checking up of reality, it always confronts the inner demands with reality's situation at the time being, and shapes the actions in accordance with the situation.

The lesser influence of the conscious personality upon the actions of neurotic characters explains the stereotypy of their actions. The subconscious drive-demand, withdrawn from the criticism of the consciousness, imposes itself blindly, without regard to previous experiences and to the external situation. This lends the course of life of these people its fantastic touch.

The third typical sign of neurotic impulsive action is the *presence of the conflict.* What is most characteristic of these individuals consists, of course, in the disturbed coöperation of the impulsive drives and the conscious ego. The impulsive actions confront the ego with a *fait accomplit.* The condemnation of the ego arrives too late, after the deed. It is true that the conflict does not always express itself in a belated regret, a condemnation of the action, but perhaps even more frequently in the appearance of tendencies directed against the individual's self, tendencies which aim at self-punishment. Hence not only do the impulsive actions themselves originate in subconscious motivations, but the moral reaction to the impulsive actions

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also results from subconscious moral feelings, from a subconscious need for punishment.

The riddle which these individuals not only offer the psychoanalyist but which they have always offered the psychiatrist, is the crass contradiction of their personality. Besides a frequently supernormal intelligence they have, in most cases, an engaging, sympathetic manner with pronounced social sensitiveness.

One would not think them capable of criminal actions. It is true that the psychoanalyst is used to something similar. In the subconsciousness of symptomatic neurotics, in these often so supersocially sensitive, inhibited individuals, he discovers the very opposite: a chaos of asocial, criminal impulse. This contrast, however, is nevertheless not so striking because the excessive inhibition of aggressive and not adaptable tendencies banishes them into subconsciousness and the realm of fantasy. Inhibition with regard to the real is responsible for the uninhibited retention of infantile and asocial impulses in the subconscious. In the case of neurotic characters, especially neurotic criminals, this contrast, however, is far more contradictory. The asocial, the ego-alien here discovers the way which leads to motility, to real actions. Whereas in the case of neurotics the socially adapted and the asocial parts of the personality operate on different levels, in the case of neurotic characters these two antagonistic trends of tendency come into operation on the identical topical spot of the personality: in the acting ego. In general, wish-impulses have to take the road to motility over the ego. The neurotic criminal simultaneously acts antisocially as well as morally, and even supermorally, because he is injuring himself. This contradictory, simultaneous operation of morally self-punitive and aggressive social motives, which makes one feel as though moral sentiment and rational insight on the one hand, and uninhibited impulsiveness on the other were existent side by side, without influencing each other, can be explained by a series of complicated psychic mechanisms, which I have elsewhere described.[5] Here I shall call attention only to one fundamental mechanism.

[5] Alexander-Staub, *Der Verbrecher und seine Richter*, Int. Pa. Vg., Vienna, 1929.

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It is a question of a curious misuse of morality, an ideology of criminal jurisprudence characteristic of primitive peoples, which controls the psychic life of these individuals; of a remarkable association of guilt and atonement. Every wrong, every punishment is utilized by these individuals in order to free themselves from moral inhibitions, and, furthermore, is used as a license for the gratification of ego-alien tendencies. They provoke their fellow-beings by skillful manipulation, they allow themselves to be punished or treated unjustly so that thereby they may be able to retain their defiant position, and do that which they themselves have condemned, that which is prohibited. Their psychology is shown in its naive single-mindedness in one of my little patients, who had been brought up in a Roman Catholic nunnery, and who made her weekly confession serve her purposes in a most remarkable way. She confessed various forbidden actions to the priest, for example, the reading of prohibited books, an action which she had not yet carried out. For this deed she was given penances, and she could then—no longer troubled by the reproaches of her conscience—read the prohibited books in question. We might, therefore, approximately, describe the situation by saying that these individuals induce their conscious ego to commit ego-alien actions by means of self-punitive or suffering mechanisms.

The basic experience of the science of psychoanalysis, that human beings do not form a homogeneous entity with regard to their personalities, but are composed of contradictory tendencies, is most illuminatingly demonstrable in the fate of the neurotic characters. Their inclination to come into conflict with existing laws, and to backslide again and again, is explained by the fact that the asocially unconscious part of their personality always breaks through with less inhibition by means of punishment, because punishment satisfies the moral demands of their personality, and thus annuls the moral inhibitions.

The forensic consequence of these views is a two-fold one. The first is one more utopian and relates to jurisprudence, especially to our criminal institutions. We realize only too clearly that these institutions are based on the sentimentally

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so deeply rooted dictum that suffering (punishment) is able to atone for a misdeed. They offer a genuinely photographic reproduction of the psychological concatenations in our subconscious subjects. It becomes more and more convincingly clear to us that punishment, even in the present-day sense, as a survival of primitive social organization, is as little calculated to be a proper means of human education, as it is to maintain social order. Yet these deductions in this connection are of less interest to us at the moment because it seems as though humanity, with its archaic subconscious mechanisms, does not as yet appear to be ripe for a fundamental alteration of the penal law.

The second forensic consequence of this investigation, however, enters very deeply into the daily practise of our courts of justice. Owing to the use of the psychoanalytical method, a continually increasing number of law-breakers prove to be such as belong to the pathological group of neurotic characters. Those paragraphs which, in the various books of statutes should distinguish between the *criminal* and the *sick* human being, do not apply to this group, so large in numbers, of neurotic characters. Hence the judge is often compelled to punish a sick man, even though medical experts have diagnostically proved that the offender belongs to the group of psychopathic personalities. The legal paragraphs in question take into consideration only those serious disturbances of the mental life which are prejudicial to the intellectual functions. Disturbances of the kind here described, which consist of faulty coöperation on the part of the affective and the impulsive trends with the intellectual functions, because they have only recently been scientifically discovered by psychoanalysis, are difficult to bring into conformity with the letter of the law of the paragraphs in question. It is urgently necessary for the penal code to take the neurotic character into consideration in order to meet the most minimal demands of equity.

This demand will seem more particularly justified to us when we consider that the neurotic law-breaker is actually no more than an unfortunate special instance of that character-disturbance which we can unmistakably identify by means of

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the presence of the neurotic impulsive action. The neurotic impulsive action, as we have shown, can be established by three easily recognizable signs. These three signs are: (1) *irrational* actions combined with a well preserved intellect; (2) *stereotypy,* the repetition of these actions; (3) *the presence of the psychic conflict,* which betrays itself in part by remorse, in part by self-injurious actions, actions directed against the sufferer's self. The criminal upshot is only a special instance of the neurotic impulsive urge to act, which certainly is partially conditioned by social factors (environmental influences). We are familiar with a large group of human beings who are disturbed in their social conduct, who, though they are neurotic (impulsive) characters, are in no wise criminal ones. To designate this socially harmless group I would suggest the term *eccentrics,* using the expression in a somewhat broader sense than that given it in English usage, somewhat in the sense that the French word *original* is employed. To this class belong all the varieties of collectors, faddists, daring sportsmen, record-gatherers and gamblers. What these socially harmless individuals have in common with the neurotic criminals is that, even though they are not anti-social, they are nevertheless asocial in their mode of life. They create for themselves a private occupation, they create their own problems, their own dangers and difficulties, which are apart from the interests of the community.

It is very interesting to note that the profoundest motive for neurotic law-breaking and for the existence of the eccentric is to be found in the same territory. Both types are unable to resolve the Oedipus conflict of youth in the normal way. The law-breaker openly rebels against the state, and, in general, against all secular and religious authority. In the eccentric's case this defiance manages to express itself in a hidden manner. The law-breaker openly fights against the Oedipus representatives, provokes them to treat him unjustly, in order then —released from moral inhibitions—once more to attack the unjust father. The eccentric scorns society. He avoids the Oedipus conflict. He creates for himself his own world. It is easy to see that eccentricity is rather an aristocratic disturbance of character. It is not a malady of the first, but of the

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second, third and later generations. These are opposed not alone by the actual father, usually recognized as socially highly placed as an authority, but by the whole series of fathers in the form of the ancestral line. To conquer and overcome this entire father-sequence seems an unpromising undertaking to the eccentric. He avoids this hopeless struggle and creates a world whose sole inhabitant he is. His complete collections, the number of his records, raise him above the average level of existence to which his fate as a descendant would otherwise have condemned him.

In his case there also are often lacking the psychic requirements needed for an open revolt against the father, and, later, society. Not only has he no hope of rising above the entire series of distinguished fathers; he has, in addition, no reason to fight against these fathers. In most cases he has been carefully educated, and later, too, the world is open to him. Life offers no natural resistance to his aggressions. Hence he must build up his own resistances, create for himself a world in which he can overcome his self-created father-imaginings. It is easy to understand that the neurotic law-breaker, on the other hand, is more apt to belong to the lower classes of society. His social position in itself makes it easier for him to fight against the unjust father in the State, which has let him get the worst of it. Yet the irrationality of his attitude is most clearly expressed in the case of certain adventurers, who often display so much talent, perseverance, and even genius, that it is clear to every casual observer that they could have gone far with these qualities even in a perfectly normal way. I have often had an opportunity of observing the youthful disposition in the case of persons with swindling tendencies described by Karl Abraham.[6]

One class of adventurers, as in the case Abraham describes, often comes from a family with many children, where the future swindler, late-born, has been preceded by a row of older brothers. A late child of the sort in a family, from earliest childhood gets used to never being able to assert himself in the customary way. He must wait a long time for his turn and he grows impatient. It is easier for the first son to become

[6] Karl Abraham, *Die Geschichte eines Hochstaplers*, Imago, Bd. xi, Heft 4.

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a decent citizen, because he has a great opportunity of soon getting ahead. The little fellow, the latest arrival in the family, must, unless he wishes to wait forever, attract attention to himself by some notable action, and thus skip over his whole series of brothers. This great deed is the scandal without which a genuine swindler cannot live, and which he again and again provokes. Yet these are no more than a few references to the fate-determinative power of the juvenile situation.

If I have succeeded in proving that the socially harmful neurotic law-breaker and the harmless eccentric are members of the same great group of character disturbances, then the judicial judgment of the former will have to change in the future, the more so since psychoanalytical therapeutics is especially promising in the case of these individuals. The neurotic character and his practical variant, the neurotic criminal, are very often healthy in their impulsive drives and almost invariably in the functionings of their ego; only the coöperation of these two systems is disturbed. Those suffering from a genuine neurosis, on the other hand, in most cases reveal a certain constitutional weakness of the impulsive drives, which is responsible for the fact that they allow themselves to be driven to substitute-satisfactions by the pressure of the real. They content themselves with a fantastic, unreal satisfaction of their impulsive demands in the form of symptoms. The neurotic character in this respect is more like the normal human being; he does not renounce real satisfaction. The only difference is that he cannot bring about what the normal person can to harmonize the original impulsive drives with the demands of the conscious ego.

In the very fitting in of the individual's dispository drives into the structure of the conscious personality, in the extension of the controlling power of the conscious ego over the unconscious life, lies the great opportunity for psychoanalytical therapeutics. The sociological consequence of these considerations is: the diagnostic comprehension of the neurotic criminal, and besides, in lieu of their punishment, their internment in sanitaria where, instead of compulsory labor, they are subjected to a thorough character-analysis.

(*Translated by Frederick H. Martens*)

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Interpretation of Delinquency Trends

By William Healy, M.D.

It is to be hoped that psychoanalytic research into those forms of anti-social conduct which, following legal usage, we call delinquency and crime will some day fill out many chapters in a criminology that is to be. We have had far too little fundamental understanding of the forging of impulses which, as one delinquent boy said, "make chains that bind." And it is not only for uncovering of causes, but also for better developments in therapy that there is need for deeper understanding. We even have all too little knowledge of what the real foundations are of many of the best results that we have obtained in checking delinquent careers—and we must state in all fairness that many challengingly splendid outcomes are obtained through altering life situations for young people after comparatively short studies of their potentialities and needs. On account of all this I am constrained to emphasize strongly the great value that may accrue from more analytic research undertaken with young offenders and with those who have been serious offenders but have ceased to offend.

For the thoughtful who have to deal with many delinquents and with a great range of delinquencies, and who follow careers along year by year, nothing will suffice except real digging into the underlying strata of personality formation and the following of this by flexible interpretation of the facts brought to light as they may be correlated with changing situational conditions. Since the days of Lombroso and his theories of criminality, there have been so many other attempts to explain the offender in terms of general causal classifications that forward-looking criminologists have been put to no small trouble to winnow the chaff from the wheat. It so stands today that scientific jargon, whether taken over from the field of endocrinology (in the use of catch words this having rather taken the place of anthropometry) or sociology or psychiatry, fails to persuade the experienced and the informal in this field. What we look for is sound theory upon which to base effective therapy.

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Now, we can frequently discern in growing delinquent careers some extraordinarily interesting and important psychoanalytic situations and developments, but these are far from being of one type or falling readily into a few simple categories. I published in 1915 a little volume of cases illustrating the relationship between mental conflicts and misconduct. Since it was the first work on this subject it naturally represented an immature statement of psychoanalytic theory, but the essential facts ring true along Freudian lines, and there has been much confirmation of this type of conduct-formation where conflict and repression lead to substitute-formation expressed in stealing and other delinquency. But such a finding does not warrant us in the conclusion that any very great amount of delinquency is due to this particular type of attempted solution of a "return of the repressed." This is my point: Just as we were hampered earlier by great talk about "the criminal"—as if he were *sui generis*—under the influence of the positivist school of criminology, so we shall continue to be hindered if, under the auspices of any school of thought, some particular causations are seized upon as applying to large proportions of delinquents and criminals. The fact is that many types of causations may be found, occasionally active, to be sure, in fairly simple settings, but usually piled up on the original causation there are a lot of other adventitious factors that go to make the whole picture. As one ponders over any long list of cases this complexity strongly confronts one and a multitude of illustrations could be given.

The Oedipus situation crops up again and again. One of the simple cases is that of a boy of ten years who has recently repeatedly run away from home. Until within a short time, superficially he has been doing very well; he has been affectionate and helpful and well adjusted in his school and companionship life. His father is an easy-going drinking man who, on account of his dissolute habits, was thrust out of the home years ago by his wife. This boy, the younger of two, rather champions his mother; he aids her, and even sleeps with her. His father recently appears in the neighborhood and is taken back by his wife. In a couple of days the boy runs away for

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the first time, and then again and again, sometimes remaining at home for a few weeks when his father at intervals is again away from home. The reason for the boy leaving comfortable home surroundings for the discomfort of vagrancy is obvious to no one. It has always appeared on the surface that the boy has been very fond of his father, who is always good to him, and has many times spoken of his returning home so that the family might have their old good times together. But with an easy establishment of transference a most vigorous phantasy life is uncovered, with pictures of killing or injuring the father as the main content. Here then we have an unresolved Oedipus due to the earlier absence and indulgence of the father, and excessive mother fixation, and externalization of emotional frustration. But this is an exceedingly simple case and fairly readily solved, with return to good behavior.

In another similar situation with perhaps nothing clearly appearing in the life situation that makes for protraction of the Oedipus complex, we may have the fact added that in runaway expeditions many satisfactions and recognitions are obtained. Some of our most difficult cases have gained a long start in their careers through the fact that they were attractive youngsters, that they had an appeal for kindly ladies and sentimental males who aided and abetted them in their wanderings and who introduced them to all sorts of situations that broke down their morale. Such a case when seen has to be combatted on more than one level of behavior tendencies.

For psychoanalytic theory it is interesting to note another type of Oedipus situation. We have had some little experience with cases of incest between father and daughter. It is astonishing to find how calmly this moves along and, when the affair is broken up, how little scar is left, the girl generally going along with her life as though nothing had happened; we find her later marrying and doing well.

We often say to ourselves when summarizing the first study of a case, how could this young individual possibly have developed a Super-ego or Ego ideal under his life circumstances, with the patterns of parental behavior so "free and easy;" and from such families we do get young individuals exhibiting

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unmodified primitive urges in most extraordinary ways. Sex behavior, properly regarded as very inimical to others, may be indulged in without the least sense of guilt. Indeed there is no more reason for self-criticism in this regard than there is for improper handling of a knife or folk. What actually goes on in front of children in crowded homes, occasionally with an immoral mother receiving men in the father's absence, is beyond the telling here. And then with the child first internalizing social prohibitions from extra-familial sources and at the same time for various reasons building up father or mother identifications, the chance for bad behavior developing would seem to be almost overwhelming. And yet, strangely enough, plenty of these children taken from such apparently irrevocable conditions do turn out very well from a moral standpoint, as we have shown in our last publication on the outcome of 500 problem cases placed in foster homes. And even though unanalyzed, they do not become neurotics. In very many cases they are not nearly so difficult for behavior reconstruction as are those, who, coming from better circumstances are dealing with conflicts which have many ramifications in unconscious phantasy life.

One of the best illustrations of Freud's wonderful insight is certainly shown in his concept that misbehavior sometimes follows merely as the result of an unconsciously perceived need for punishment. By this time the idea has been well taken over into psychoanalytic theory and so far as delinquency is concerned has been specially elaborated on by Reik and in the little volume published last year by Alexander and Staub. I am very far from being willing to attribute to this guilt feeling the development of any so-called "criminal character," because I think, again, this is a sort of jargon—there are various sorts of criminal characters, others just as criminal as this type. Nor is any great proportion of criminality to be accounted for in this way. Here in America we have altogether too much criminality, often undetected or punished, for profit only, and too much for the thrill of adventure to be willing to interpret any considerable portion of it as resulting from guilt feeling.

Every now and again we do get astonishing confirmation

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of this part of psychoanalytic theory. We have instances where, as I have sometimes said, the individual almost literally breaks into jail. It is not so easy to analyze these young people, some of them are not old enough to face out their situation in an analytic way; in others the religious or family tradition is against the procedure, but the essentials stand out clearly enough. In one young fellow we have known, where the basis of an underlying guilt feeling was clear enough, there have been periods of attempted expiation through great industry, church-going, and model behavior generally—all evidently sometimes precursors to indulgence in instinct impulses. And in spite of every chance and much good feeling towards him nothing has sufficed for this young man except final commitment to a correctional institution for an offense, a deliberately committed theft, not at all in line with the stresses that fundamentally trouble him.

Case after case could be cited from our long records on them, as variations are played upon the central theme. It is a matter of great concern to recognize these cases, since they often represent very good human material, and to discover what can be done therapeutically for them. We have found it no easy task.

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The Paranoid Criminal

A Casuistic Study

By Dorian Feigenbaum, M.D.

Paranoia is undoubtedly one of the most fascinating subjects in psychiatry. The term itself is old: it was used in common speech, in ancient Greece, for "misunderstanding," but also for insanity in general. By the beginning of the 19th century it had become a psychiatric term, but as such it underwent frequent changes in position, and various forms of mental disorder were designated by it. Today, however, paranoia has a more or less definite meaning in international psychiatry.[1]

Descriptive psychiatry reaching its high point in the work of Emil Kraepelin, had the undoubted merit of establishing the definite morphological structure of paranoia, although it did not succeed in discovering its inner structure. Then came Freud. The new psychoanalytical method of investigation has stood the test of almost a quarter of a century and has not been refuted until now. Nor have any other tenable theories of paranoia arisen in this period.

The bare essentials of the Freudian theory of paranoia may be briefly summarized in the statement that the basic dynamic factors of the disease are: 1) regression of the libido to a narcissistic level, 2) repressed homosexuality which ultimately produces a psychical upheaval, 3) projection mechanism[2] which is, to a great extent, the product of a defence against homosexuality: "I love X—no, I do not love X—I hate X, because —X hates me."

Deep analysis of cases of neurosis which penetrated be-

[1] It is generally reserved, as is no doubt well known to the reader, for a form of mental disorder characterized principally by delusion of persecution, delusion of jealousy, or megalomania—frequently without obvious impairment of intelligence and conduct. This is not the place to mention accessory details of each of these forms of delusion. Nor is there included in this definition the form of schizophrenia with paranoid symptoms, namely the so-called *dementia paranoides*.

[2] For the benefit of those who may not be familiar with the term, it may be said here that *projection* is the general tendency, especially strong in paranoia, to repress intolerable subjective urges and thoughts (thus preventing them from entering the field of consciousness) and to ascribe them to other persons or even to inanimate objects.

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yond the symptoms into the underlying characterological disposition, revealed faint variations of paranoia in which clinical symptoms were mild or almost undetectable. Nevertheless, the structure of these neurotic characters has shown those specific elements which fully justify the designation "paranoid character." This would indicate that there is only a quantitative difference between paranoia and paranoid character. Mere quantitative difference has often been found to represent the dividing line between pathological and so-called normal conditions. The three factors found to constitute the fundamental structure of paranoia are fully duplicated in paranoid character but, of course, much more faintly. We surmise that in the paranoid character homosexual disposition seems generally more overt and the projection tendency more apt to express itself in asocial conduct or anti-social actions rather than in ideological indulgence in delusions.

These distinctions are by no means of theoretical significance only, for in recognizing paranoid character trends with their potential implications, we may be able to cure the neurotic character and prevent development of full-fledged paranoia. It is especially important to track down the paranoid trends, since they are often concealed behind apparent health, while actually doing damage to the individual and society all the time.

This applies particularly to criminals and delinquents, since criminals not infrequently show distinctly paranoid structure of character, and curing their character may be equivalent to curing them of criminalcy. In what follows, I will introduce the criminal variety of the paranoid character—the "paranoid criminal."

I presume that every alienist has observed in his practice criminals of paranoid character. I am going to describe one of the criminal cases I observed in my own practice (case Engelbert, reserving a fair portion of the space at my disposal to an analysis of the striking, I may say classical case of Antonio B. which came to my attention recently through Dr. Atkin's demonstration before the New York Society for Clinical Psychiatry of a delinquent under the observation of the Manhattan State Hospital, Ward's Island. The Direction

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of the Hospital and Dr. Atkin have been very generous in allowing me to study the material on this remarkable case, for which I thank them here.

Case Antonio B.

Antonio B. was tried repeatedly, more than a dozen times, for thefts, assault and battery, violent cruelty to his wife, neglect to support her, and also for general insubordination to authorities. The judge, be this to his credit, recognized a pathological strain in his character and committed him to a psychiatric ward for observation. In spite of the lack of definite symptoms of psychosis the late lamented Dr. C. Floyd Haviland had him kept under observation in order to make a thorough study of this interesting borderline case, before reporting to the judge.

Physical examination was entirely negative. He is a very fine physical specimen, a splendid masculine type. There was no evidence of endocrine disturbances. Head measurements showed normal condition. Blood pressure: 130/84. Microscopical and serological examinations also gave negative results.

Little is known of B.'s family history. His mother deserted her husband and children and eloped with a lover when B. was about three and a half years old. No insanity reported in family, though it has been stated that both parents were probably psychopaths. Both Antonio B. and his wife accuse B.'s father of attempting to rape Mrs. B. and of inciting B. to desert her.

Antonio B. was cared for in his childhood by his father who disciplined him frequently with great severity. But: "father never punished me without reason." Antonio was a "bad boy" in school. He came into direct conflict with the law when he stole a car at the age of seventeen. He claimed that he did not try to conceal the robbery: "I was not afraid. What was I to be afraid of?" Actually, he repainted the automobile and tried to sell it. He was sentenced to a year in the penitentiary, but really remained there a year and a half, because of misbehavior and "picking arguments." A number of years later he was sent to the workhouse for an attack upon a build-

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ing inspector, and about a year later was given six months in the workhouse for refusing to support his family and defying the court. He has received, since then, a number of short sentences, being called before the domestic court fourteen times.

He became self-supporting at the age of seventeen and thereafter had many trades frequently requiring some skill. But he was generally discharged after a period never exceeding six months usually for failing to keep appointments, refusing to take orders, or getting into fights.

Although he states that he neither loves nor hates his father, he feels marked antagonism towards him; he has not seen him for the past two and a half years.

His first sexual experiences were homosexual. When he was a boy friend had committed fellatio with him. He says never after has he had a similar experience: "my body could not stand that stuff." He was also introduced to an elderly man who committed fellatio with him four times and paid him for it. The last time he beat this man up severely, robbed him and claims he never again performed homosexual acts. Yet, about two years ago he pushed a good sized drinking glass into his rectum necessitating a stay of one week in a hospital to accomplish its removal. His first heterosexual experiences occurred at the age of fifteen with a prostitute and until his marriage, at 22, he visited prostitutes regularly. He never had a love affair and could not recall feelings of tenderness to any woman. "I used them and fired them, I was never fond of women." He says, he had married his wife only because he "wanted to give his father someone to help him take care of four half brothers" left motherless after the death of his father's second wife. During B.'s frequent separations from his wife, he, nevertheless, used to visit her to have sexual relation with her and he used to pay her for coitus. It is also reported that he used to attempt coitus per rectum with his wife. His potency is quoted as being normal; however, no data are presented as to duration of erection, orgasm, etc. B. is father of three children.

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For four months he was kind to his wife. Then he became mean and began to beat her. When she returned from the hospital after giving birth to their first baby, he drove her out and threatened to burn the house. Marriage and its consequent responsibilities intensified his abnormal traits, his emotional instability increased and he became more and more criminally inclined. Many times the court ordered him to separate from his wife, and the children whose number increased to three, used to be placed in private families. He has never shown any affection for his children. He is reported to have hogged the best food to himself leaving the bones for the children. When visiting his wife during these separation periods he would become violent and threaten her with a knife. On one such occasion he broke a glass door. On another similar occasion he threatened to dig a grave and bury her with his own hands, strangle her children, etc. Later, when rejoining his family, he allowed his brother-in-law who boarded with them to keep his mistress in their house. Once when they had guests, he gave his wife a severe beating and made her dance on a table and poured salt on her head, all in presence of the visitors. Once he threatened her with a hatchet wrapped in paper saying: "Do you want the hatchet to get rusty or shall I use it?" When his wife begged him to desist, he poured water on the hatchet and putting it away he said to his wife that she was the handle and he was the head (blade?). He also volunteered this statement: "I think if I could beat her up so that she would be in bed in a hospital for about a month, I think it would do her good." In general, whenever he administers a beating he claims he is only dispensing justice. He protests when he is accused of non-support and blames his wife and her family for it. "They are plotting against me to put me in here—it is a put up job."

Antonio B. is quick tempered, argumentative, antagonistic and ready to strike out at the least provocation. He was never able to keep appointments or to obey orders. He is fond of swearing and obscenities. He is a skilled mechanic by nature and is extremely interested in radio and automobiles. He

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wasted about six hundred dollars experimenting with radio sets while his family was starving.

In the hospital the following observations were made. During the examinations he was pleasant, co-operative and agreeable. Emotionally he was slightly euphoric. He gave the impression of being very egocentric and saw exclusively his own point of view. He was very proud of his physical strength and courage. No hallucinations were observed. His irritation centered stereotypically about his wife. He blames her for incompetence and lack of co-operation. Denies practising sexual perversions with her.

For the introduction of the glass into his rectum he gives the following account: he was alone in the shop at night, a man entered and put his arms around him whereupon he dropped unconscious. When he came home he felt pain in the rectum and noticed that it was bleeding. He says further that there must have been at least five men who attacked him and that they might have thought that he was the employer against whom they had a grudge. B. was always correctly oriented; no disturbance in sensorium. Not mentally defective: His I. Q. was 69, but with better co-operation it was believed that it would have been higher. On the other hand he showed very little insight into his condition and assumed no blame whatsoever for his predicament. His stay in the hospital was relatively uneventful. He easily adjusted himself to the routine and became an excellent worker on the laundry wagon. He was very boastful about his powers and abilities. He said: "When I get out I can study. I can even become a lawyer if I want to." His boasting was of the kind that is found in boys who constantly indulge in phantasies of strength and power. His wife used to visit him, but he was cold, and at times, even hostile to her.

No true psychotic symptoms were reported to have been observed. He expressed proper sentiments at all times without really feeling them. The only way he could reconcile the discrepancy between his sentiments and his behavior was by projection, that is by blaming other people for his own failures. He is irresponsible in spite of his ability as a worker. To his

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frustrations and the punishments which were constantly inflicted upon him, B. reacted by anger, especially towards those who made the greatest demands upon him. Inquiries regarding his dreams were largely negative. He had a dream of "developing motors," of "a device to protect automobiles from being stolen." This device had some relation to television, he said. In his dreams, he said, he gets ideas and sees them realized; some of them he says he tried to carry out in real life, though he has never shown any great interest in pushing his schemes. In another dream he "falls from a big skylight" and actually finds himself on the floor when awaking. He was asked to report his dreams to the physician in charge, and the next day he tells the stenographer he was planning to hoax the physician. He had not dreamed but he wanted to report that he had dreamed that he was about to copulate with a sheep, and that just when he was about to do it, the sheep disappeared and he woke up.

This case presents an excellent example of what I would call a *criminal paranoid character*. If we analyze the material presented we find that Antonio B. exhibits the paranoiac mechanisms in their mildest form, with criminalcy as its outstanding outlet. We find here the paranoid character trio, namely (1) narcissistic fixation, (2) homosexuality, (3) excessive projection.

Patient is undoubtedly fixated in narcissism. He never succeeded in having satisfying heterosexual relation. His object cathexis is nil. All indications show that he is in love with himself, to wit his excessive confidence in his own powers, the propriety of his conduct, the justness of his case, his general infallibility, his self-righteousness, etc. His cathexis is a narcissistic-homosexual one, the origin of which must be placed on the pregenital level, namely the anal-sadistic-phallic stage.

His homosexuality based on anal-erotic fixation is, as we have seen, the outstanding characteristic of his sex life. This is borne out first by his actual passive homosexual relations in his youth, lack of romantic experience, coldness and cruelty to his wife, the glass in the rectum incident, and his "marrying for father"-motive.

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His tendency to projection which constitutes the third essential element of the paranoid structure—and has the emotional mechanism of "I love X—no, I do not love X—I hate X, because—X hates me"—expresses itself in his general antisocial behavior, his chronic, hostile, sometimes violent opposition to all forms of organization, social order and discipline. The skeleton formula of the emotional relationship between Antonio and society, which is father's world, is identical with the above, just substitute "father" or "father's world" for "X," viz.:

"I love father—no, I do not love father—I hate father, because—father hates me"—"I love father's world—No, I do not love father's world—I hate father's world, because—father's world hates me." This last formula is really quite inclusive: it includes wife, employer and authorities.

The objection may be raised here that in fact the patient has not developed any observable delusion of persecution. The answer is: true, the patient has not developed any explicit conscious psychological formulation which, by the way, would be a psychosis, but the unconsciously present delusion is implied in many of his urges, acts and reactions. Again the implicit mechanism is "father's world is hostile—I have to fight it and destroy it because—it wants to destroy me." Of course, B. does not theorize. He acts. And his action saves him from formal, explicit paranoiac insanity. It may be well to state here that under circumstances which we are at present unable to specify the subject might have developed a full-fledged paranoia, but no criminality. He would then, in other words, offer his sanity on the altar of the social instinct.

Some of the individual incidents and general observations reported deserve closer study for a better understanding of the case.

First, let us look into his relation to his father. It is distinctly ambivalent. He both hates and loves him. True, the material that is at our disposal does not offer enough evidence for either love or hatred to be convincing to one not experienced in psychological analysis. Still, the little that we have, is so symptomatic and telling that in drawing our conclusions we

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The Paranoid Criminal

A Casuistic Study

By Dorian Feigenbaum, M.D.

Paranoia is undoubtedly one of the most fascinating subjects in psychiatry. The term itself is old: it was used in common speech, in ancient Greece, for "misunderstanding," but also for insanity in general. By the beginning of the 19th century it had become a psychiatric term, but as such it underwent frequent changes in position, and various forms of mental disorder were designated by it. Today, however, paranoia has a more or less definite meaning in international psychiatry.[1]

Descriptive psychiatry reaching its high point in the work of Emil Kraepelin, had the undoubted merit of establishing the definite morphological structure of paranoia, although it did not succeed in discovering its inner structure. Then came Freud. The new psychoanalytical method of investigation has stood the test of almost a quarter of a century and has not been refuted until now. Nor have any other tenable theories of paranoia arisen in this period.

The bare essentials of the Freudian theory of paranoia may be briefly summarized in the statement that the basic dynamic factors of the disease are: 1) regression of the libido to a narcissistic level, 2) repressed homosexuality which ultimately produces a psychical upheaval, 3) projection mechanism[2] which is, to a great extent, the product of a defence against homosexuality: "I love X—no, I do not love X—I hate X, because —X hates me."

Deep analysis of cases of neurosis which penetrated be-

[1] It is generally reserved, as is no doubt well known to the reader, for a form of mental disorder characterized principally by delusion of persecution, delusion of jealousy, or megalomania—frequently without obvious impairment of intelligence and conduct. This is not the place to mention accessory details of each of these forms of delusion. Nor is there included in this definition the form of schizophrenia with paranoid symptoms, namely the so-called *dementia paranoides*.

[2] For the benefit of those who may not be familiar with the term, it may be said here that *projection* is the general tendency, especially strong in paranoia, to repress intolerable subjective urges and thoughts (thus preventing them from entering the field of consciousness) and to ascribe them to other persons or even to inanimate objects.

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yond the symptoms into the underlying characterological disposition, revealed faint variations of paranoia in which clinical symptoms were mild or almost undetectable. Nevertheless, the structure of these neurotic characters has shown those specific elements which fully justify the designation "paranoid character." This would indicate that there is only a quantitative difference between paranoia and paranoid character. Mere quantitative difference has often been found to represent the dividing line between pathological and so-called normal conditions. The three factors found to constitute the fundamental structure of paranoia are fully duplicated in paranoid character but, of course, much more faintly. We surmise that in the paranoid character homosexual disposition seems generally more overt and the projection tendency more apt to express itself in asocial conduct or anti-social actions rather than in ideological indulgence in delusions.

These distinctions are by no means of theoretical significance only, for in recognizing paranoid character trends with their potential implications, we may be able to cure the neurotic character and prevent development of full-fledged paranoia. It is especially important to track down the paranoid trends, since they are often concealed behind apparent health, while actually doing damage to the individual and society all the time.

This applies particularly to criminals and delinquents, since criminals not infrequently show distinctly paranoid structure of character, and curing their character may be equivalent to curing them of criminalcy. In what follows, I will introduce the criminal variety of the paranoid character—the "paranoid criminal."

I presume that every alienist has observed in his practice criminals of paranoid character. I am going to describe one of the criminal cases I observed in my own practice (case Engelbert, reserving a fair portion of the space at my disposal to an analysis of the striking, I may say classical case of Antonio B. which came to my attention recently through Dr. Atkin's demonstration before the New York Society for Clinical Psychiatry of a delinquent under the observation of the Manhattan State Hospital, Ward's Island. The Direction

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of the Hospital and Dr. Atkin have been very generous in allowing me to study the material on this remarkable case, for which I thank them here.

Case Antonio B.

Antonio B. was tried repeatedly, more than a dozen times, for thefts, assault and battery, violent cruelty to his wife, neglect to support her, and also for general insubordination to authorities. The judge, be this to his credit, recognized a pathological strain in his character and committed him to a psychiatric ward for observation. In spite of the lack of definite symptoms of psychosis the late lamented Dr. C. Floyd Haviland had him kept under observation in order to make a thorough study of this interesting borderline case, before reporting to the judge.

Physical examination was entirely negative. He is a very fine physical specimen, a splendid masculine type. There was no evidence of endocrine disturbances. Head measurements showed normal condition. Blood pressure: 130/84. Microscopical and serological examinations also gave negative results.

Little is known of B.'s family history. His mother deserted her husband and children and eloped with a lover when B. was about three and a half years old. No insanity reported in family, though it has been stated that both parents were probably psychopaths. Both Antonio B. and his wife accuse B.'s father of attempting to rape Mrs. B. and of inciting B. to desert her.

Antonio B. was cared for in his childhood by his father who disciplined him frequently with great severity. But: "father never punished me without reason." Antonio was a "bad boy" in school. He came into direct conflict with the law when he stole a car at the age of seventeen. He claimed that he did not try to conceal the robbery: "I was not afraid. What was I to be afraid of?" Actually, he repainted the automobile and tried to sell it. He was sentenced to a year in the penitentiary, but really remained there a year and a half, because of misbehavior and "picking arguments." A number of years later he was sent to the workhouse for an attack upon a build-

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ing inspector, and about a year later was given six months in the workhouse for refusing to support his family and defying the court. He has received, since then, a number of short sentences, being called before the domestic court fourteen times.

He became self-supporting at the age of seventeen and thereafter had many trades frequently requiring some skill. But he was generally discharged after a period never exceeding six months usually for failing to keep appointments, refusing to take orders, or getting into fights.

Although he states that he neither loves nor hates his father, he feels marked antagonism towards him; he has not seen him for the past two and a half years.

His first sexual experiences were homosexual. When he was a boy friend had committed fellatio with him. He says never after has he had a similar experience: "my body could not stand that stuff." He was also introduced to an elderly man who committed fellatio with him four times and paid him for it. The last time he beat this man up severely, robbed him and claims he never again performed homosexual acts. Yet, about two years ago he pushed a good sized drinking glass into his rectum necessitating a stay of one week in a hospital to accomplish its removal. His first heterosexual experiences occurred at the age of fifteen with a prostitute and until his marriage, at 22, he visited prostitutes regularly. He never had a love affair and could not recall feelings of tenderness to any woman. "I used them and fired them, I was never fond of women." He says, he had married his wife only because he "wanted to give his father someone to help him take care of four half brothers" left motherless after the death of his father's second wife. During B.'s frequent separations from his wife, he, nevertheless, used to visit her to have sexual relation with her and he used to pay her for coitus. It is also reported that he used to attempt coitus per rectum with his wife. His potency is quoted as being normal; however, no data are presented as to duration of erection, orgasm, etc. B. is father of three children.

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For four months he was kind to his wife. Then he became mean and began to beat her. When she returned from the hospital after giving birth to their first baby, he drove her out and threatened to burn the house. Marriage and its consequent responsibilities intensified his abnormal traits, his emotional instability increased and he became more and more criminally inclined. Many times the court ordered him to separate from his wife, and the children whose number increased to three, used to be placed in private families. He has never shown any affection for his children. He is reported to have hogged the best food to himself leaving the bones for the children. When visiting his wife during these separation periods he would become violent and threaten her with a knife. On one such occasion he broke a glass door. On another similar occasion he threatened to dig a grave and bury her with his own hands, strangle her children, etc. Later, when rejoining his family, he allowed his brother-in-law who boarded with them to keep his mistress in their house. Once when they had guests, he gave his wife a severe beating and made her dance on a table and poured salt on her head, all in presence of the visitors. Once he threatened her with a hatchet wrapped in paper saying: "Do you want the hatchet to get rusty or shall I use it?" When his wife begged him to desist, he poured water on the hatchet and putting it away he said to his wife that she was the handle and he was the head (blade?). He also volunteered this statement: "I think if I could beat her up so that she would be in bed in a hospital for about a month, I think it would do her good." In general, whenever he administers a beating he claims he is only dispensing justice. He protests when he is accused of non-support and blames his wife and her family for it. "They are plotting against me to put me in here—it is a put up job."

Antonio B. is quick tempered, argumentative, antagonistic and ready to strike out at the least provocation. He was never able to keep appointments or to obey orders. He is fond of swearing and obscenities. He is a skilled mechanic by nature and is extremely interested in radio and automobiles. He

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wasted about six hundred dollars experimenting with radio sets while his family was starving.

In the hospital the following observations were made. During the examinations he was pleasant, co-operative and agreeable. Emotionally he was slightly euphoric. He gave the impression of being very egocentric and saw exclusively his own point of view. He was very proud of his physical strength and courage. No hallucinations were observed. His irritation centered stereotypically about his wife. He blames her for incompetence and lack of co-operation. Denies practising sexual perversions with her.

For the introduction of the glass into his rectum he gives the following account: he was alone in the shop at night, a man entered and put his arms around him whereupon he dropped unconscious. When he came home he felt pain in the rectum and noticed that it was bleeding. He says further that there must have been at least five men who attacked him and that they might have thought that he was the employer against whom they had a grudge. B. was always correctly oriented; no disturbance in sensorium. Not mentally defective: His I. Q. was 69, but with better co-operation it was believed that it would have been higher. On the other hand he showed very little insight into his condition and assumed no blame whatsoever for his predicament. His stay in the hospital was relatively uneventful. He easily adjusted himself to the routine and became an excellent worker on the laundry wagon. He was very boastful about his powers and abilities. He said: "When I get out I can study. I can even become a lawyer if I want to." His boasting was of the kind that is found in boys who constantly indulge in phantasies of strength and power. His wife used to visit him, but he was cold, and at times, even hostile to her.

No true psychotic symptoms were reported to have been observed. He expressed proper sentiments at all times without really feeling them. The only way he could reconcile the discrepancy between his sentiments and his behavior was by projection, that is by blaming other people for his own failures. He is irresponsible in spite of his ability as a worker. To his

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frustrations and the punishments which were constantly inflicted upon him, B. reacted by anger, especially towards those who made the greatest demands upon him. Inquiries regarding his dreams were largely negative. He had a dream of "developing motors," of "a device to protect automobiles from being stolen." This device had some relation to television, he said. In his dreams, he said, he gets ideas and sees them realized; some of them he says he tried to carry out in real life, though he has never shown any great interest in pushing his schemes. In another dream he "falls from a big skylight" and actually finds himself on the floor when awaking. He was asked to report his dreams to the physician in charge, and the next day he tells the stenographer he was planning to hoax the physician. He had not dreamed but he wanted to report that he had dreamed that he was about to copulate with a sheep, and that just when he was about to do it, the sheep disappeared and he woke up.

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Some of the individual incidents and general observations reported deserve closer study for a better understanding of the case.

First, let us look into his relation to his father. It is distinctly ambivalent. He both hates and loves him. True, the material that is at our disposal does not offer enough evidence for either love or hatred to be convincing to one not experienced in psychological analysis. Still, the little that we have, is so symptomatic and telling that in drawing our conclusions we

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may feel greater confidence than a paleontologist reconstructing the body of a pre-historical animal from a few bones and teeth which were dug up by the field party.

Hatred is bound to be present where strict discipline was resorted to in childhood, and, no doubt, B. has a hatred component towards his father for this reason. But, he represses it and overrides it by conflicting acts of love, such as approbation of his father's discipline, and an unlimited forgiving attitude (apparently no resentment against father for trying to rape his wife). In fact, hardly any individual reaction in relation to his father can be classified as a pure hatred or pure love relation; every act is rather a blend of both in varying proportions. Typical in this respect is his acceptance and approval of his father's harsh discipline. The approval in this case is both an over-compensation for a reaction of hatred, an expression of identification with father (which is a love-act). At the same time this identification with the harsh father and acceptance of his arbitrary acts, is the foundation of his own Super-Ego from a moral-social factor to one of an anti-social sadistic significance. In view of these facts, B. may be designated as a *chronic neurotic Super-Ego criminal.* He can be placed between the "neurotically conditioned criminal" and the "normal, non-neurotic delinquent with criminal Super-Ego" of Alexander-Staub, as intermediary type.[3]

Another example of his ambivalence to a father-image is his homosexual experience with the "old man" whom he beat up after having yielded to him four times.

The apotheosis of his affection for his father which, at the same time, illustrates his impaired heterosexuality, is brought out very emphatically in his marriage which, as he says, is for the sake of helping father take care of his children by second marriage.[4] In fact, he provides father with a wife, to gratify

[3] Franz Alexander and Hugo Staub, Der Verbrecher und seine Richter, Intern. Psychoanal. Verlag, Wien, 1929.

[4] In this connection I may mention a case of mine, a 29 year old man suffering from marked homosexual drives and states of depression, whose outstanding emotion towards his father was excessive hatred because he had been responsible for the ruin of the family. Nevertheless, he carried with him for some time the idea of sending his father a gift of money so large as to constitute a sacrifice of the major part of his savings: this was especially surprising in this case because the patient was pathologically miserly.

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father's sexuality which he would have liked to gratify with his own person, we surmise. Of course, this act which would seem a supreme and inconceivable sacrifice in case of an individual of normal sexuality, is not so significant with our homosexual subject. To him a wife is not an object of complete sex satisfaction and he gives her up not unwillingly, at the same time thereby gratifying his far stronger urge, namely this unconscious passive homosexuality with respect to his father.

A striking expression of B.'s pathological sexuality to which he reverts from time to time is the exceedingly characteristic glass-in-the-rectum episode. It is the fruition of his auto-erotic, homosexual and sado-masochistic cravings. It is quite obviously a masturbatory act with implications of passive homosexuality. The use of a fragile and dangerous object as a penis symbol contributed the sado-masochistic element of the performance. It is also interesting to note that B. uses not a solid object but a hollow receptacle, a glass vessel, which possibly symbolizes that the act is preparatory, a sort of an opening of the way and reserving the entrance for a more important penetrator, perhaps the penis of father.

Trying to connect Antonio B.'s psycho-sexual urges as illustrated above with psycho-analytical findings with regard to the anal character of the pursuer in paranoia,[5] we may say: B. longs for a pursuer. The pursuer is expected to attack per rectum. The glass which B. mysteriously introduces into his body (sc. "incorporates"), must be, then, considered an inanimate representation of the pursuer who is, nevertheless, not any less welcome to him than the aggressive male is to the fleeing female. The single apparently incomprehensible physical action must stand for psycho-sexual urges, probably of long standing. Applicable to this situation are Abraham's views of "partial incorporation" in paranoia.[6] It is clear that to the paranoiac the love-object has been represented by feces which he cannot discharge. The introjected part of the love-object does not leave him any more, as in the case of melancholia

[5] Freud, Ferenczi, Abraham, Stärcke, Nunberg and others have called special attention to the fact that the paranoiac delusion of persecution is invariably *anal* in character.

[6] Abraham, Selected Papers. Pp. 487.

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where the totally introjected object exercises its tyrannic power ("total-incorporation"). Since the paranoid character represents a quantitative variation of paranoia, it is not surprising that B. acted like a paranoiac in this connection. Indeed, this symptomatic action alone, is to the analytical expert pathognomonic for a tentative diagnosis of a paranoiac formation.

The patient's version of the glass incident, asserting an attack by "at least five men who might have thought that I was the employer against whom they had a grudge . . ." can hardly be accepted; he is thoroughly unreliable otherwise. Of course, this story has its own, independent value as a characteristic paranoid fantasy, since the persecution idea is overtly anal.

The two other outstanding fantasy acts of Antonio B. also require elucidation. B. pours salt upon his wife's head while compelling her to dance on a table in presence of invited guests and, another time, after having threatened her with a hatchet lets water run over it declaring that she is the handle and he the head. Both acts reveal strong sadistic tendencies that go far towards explaining B.'s criminality. B.'s general aggressiveness is deeply rooted in his libido which is steeped in homosexuality. The salt incident is indisputably a manifestation of a fantasy of sacrificing his wife, putting her to ceremonial death thus dedicating her to the father-deity which, in fact, is a repetition of marrying her for father's sake. The wife of sacrifice is seasoned with salt and presented to the assembled. The victim herself is compelled to contribute the ritual dancing in this Moloch ceremony.[7]

The hatchet-episode is a similar lust murder fantasy and easily recognizable as such. Water obviously symbolizes blood here, or washing the imaginary blood off the hatchet. B. directly indicates the phallic symbolism of the hatchet (which is established as a symbol in folklore) in the remark he made

[7] The use of salt in sacrifice is well known. It is mentioned in the Bible frequently (Lev. II, 13; Ez. XLIII, 24; St. Mark, IX, 49, 50; also in classical mythology (Iliad I, 4, 49). In Rome no sacrifice could be offered without salt (Pliny, XXXI, 41). On use of salt in connection with declaration of fidelity to kings, see Ezra, IV, 14.

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to his wife at this performance: "You are the handle and I am the head." [8]

A word about B.'s sheep-dream hoax. Freud taught us to value fabrication as much as authentic dreams, both being products of the unconscious though differing as to degree and level of gratification. This play of B.'s fantasy in a wakeful state is also a wish-fulfillment of his own. The fantasy which B. imagines he has under his full control betrays, unknown to him, one more of his latent perversions, namely zoophilia. We cannot comment on it further except that by recalling current vulgar phraseology we gather that "cheating the physician" is symbolized here, through transference, by a coitus fantasy, in which he debases the physician to the status of the animal—just as he degraded his wife to an animal of sacrifice.

We see then that Antonio B.'s sadism towards his wife which constitutes the chronicity of his criminality, is a highly complex product of his characteristically paranoid drives: (*a*) *his narcissism makes any object-love difficult, if not impossible;* (*b*) *his homosexuality motivates part of his ill-will to her;* (*c*) *his projection justifies his hatred and ill-treatment of her.*

Case Engelbert K.

This case was studied by the writer shortly after the war at the Neuro-Psychiatric Clinic, Garnisonspital, Vienna, where he worked on the staff at the time as assistant to its chief, Prof. Dr. Emil Mattauschek. The writer takes this opportunity to thank Dr. Mattavschek for having referred this highly interesting case to him to be studied and reported to an Austrian court martial.

The case Englebert K. would be of interest to a writer of fiction but, it is also quite important as material for the study and understanding of character pathology, for the paranoid criminal character in particular.

E., 36 years old, who was a choreman on a farm was sent

[8] Both of these episodes smack strongly of the magic element of primitive religion. In an earlier paper the author pointed out the inherent relationship between the paranoiac thought pattern and magical thinking (D. Feigenbaum, "Paranoia and Magic," address before the XI. International Psycho-Analytical Congress at Oxford, July 31, 1929).

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for psychiatric observation by the court before which he had been arraigned for desertion from military service and for forty odd thefts and burglaries. Under arrest he displayed a mild form of the Ganser syndrome[9] and tried to commit suicide by hanging himself.

E. was of illegitimate birth, and so was his father, a chronic drunkard. He was brought up by his stern and religious grandmother. He lived with her alone and slept with her until he was 13 years of age. Then—"she would not stand my sleeping with her any longer," he says, and he had to sleep in an attic. He was a healthy boy, only inclined to enuresis nocturna and nightmares. In youth he had pneumonia which he claimed weakened his body permanently. At the age of 12 grandmother's husband died and his own mother and her husband who, E. had thought, was his father came to live in grandmother's house. On that occasion his supposed father accused his mother of immorality and declared that E. was not his son; with this he became violent and threatened E.'s mother, grandmother as well as E. himself. The boy was much frightened by his father's threats and never trusted him after that. E. says he could reveal worse things about his father if he did not wish to shield him from the law. After all—"he did much for me later in life."

At school he had been competent and industrious and frequently led the other boys. But later he became reticent, indulged in much day-dreaming and withdrew to the fields and woods where he was frequently found reading detective and ghost stories, also tales about Indians. Later on he read religious tracts, fortune-telling books, and dream-books. Still later he developed a liking for sex pamphlets. He was always a passionate lover of nature, especially of his birthplace and was fond of animals. He learned the trade of a mason, but later became a wood-carver. Although efficient and able, he changed positions very often and had periods of extreme aversion to labor. Explaining this he declared that his body had been

[9] *Ganser Syndrome*, it may be recalled, is a syndrome of an hysterical form of prison psychosis, most often of episodic nature and characterized principally by a twilight state, impaired orientation, confusion, anxiety, and visual hallucinations.

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unable to stand hard or unpleasant and confining employment; he was by nature intolerant of restrictions of any kind. He needed above all freedom, air, nature and threw up jobs which were in any way restrictive.

He was sexually precocious, yet shy; began to like girls and dancing when he reached the age of 20. He began to masturbate quite late in his youth; masturbation caused him many pangs of conscience and developed in him a strong sense of sin. At 25, he had sexual relations with a girl whom he intended to marry. This experience caused him to suffer from sleeplessness and general weakness; he broke the engagement and interrupted all relations with the girl—"My health did not permit it," he said. He claims he never had any sexual experience again after that. He had never been delinquent prior to his conscription for military service. He deserted at the first opportunity and began a criminal career, a kind of Robin Hood existence in the Wienerwald woods surrounding Vienna. There he lived in hiding in a hut he built near the cemetery where his grandmother was buried. At night he used to visit his mother who justified his course; father knew nothing of it. When questioned he claimed that he deserted from the army because military service had weakened his body and he could not stand it any longer. He explained that because of his desertion he was compelled to go into hiding and take to robbing in order to obtain the necessities of life. He said he liked the surroundings of his hut and felt happy and contented in it; "when he heard the distant bells" he "experienced a religious exaltation" and the dreams of his youth "came back to him." But, above all, he enjoyed his freedom which had always seemed a prime necessity to him. The principal reason for his attachment to the locality was the proximity of his grandmother's grave, over which he used to pray and weep. In fact he became so attached to his abode that he could not leave it even when it became urgent for him to transfer his activities elsewhere.

E. used to revenge himself upon his enemies; after escaping his pursuers he would return in the night to throw stones or fire shots at their windows in order "to frighten them," as he

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said. When he made a good catch, he would openly boast of having a lot of money.

At the Hospital the following records were made: a gradual denouement of the Ganser complex took place during the first few weeks, improvement in orientation and decrease of inhibition. Yet traces of an anxious, sometimes resigned and apathetic state of mind, colored by self-reproach and penitence, still remained. At nights he had frightening dreams and saw "apparitions;" "three soldiers shooting at me, fortunately driven off"—"it was probably the Savior who protected me," he added. He had dreams of skeletons, corpses and monstrous apparitions. He quoted a number of dreams of the past where he found himself "alone amidst nature, flowers, woods and singing birds and was very happy." He recalls horrible dreams, f. i. of being "pursued and expecting to be killed." With these he associates a very old crippled, half-insane woman who used to sleep in his grandmother's barn. He used to annoy her, disturb her sleep and throw water on her till she finally left. On leaving she cursed him and predicted that he would pay for it dearly later on in life. He developed a strong attachment to the physician in charge with whom he held long conversations supplemented with heaps and heaps of long sentimental letters, in which he told his life story with great fullness and confidence and asked forgiveness for his past offenses. He spoke and wrote with a literary refinement, unusual in a man of his social station; his style showed the influence of much romantic reading.

He was over six feet tall but pale, with weak muscles, soft voice and general feminine characteristics; had the looks of a day-dreams; was a fresh air devotee and could not bear confinement in a room; was devoutly religious.

So far, the romantic story of Engelbert. On the surface, this Robin Hood apparently lacks the obvious characteristics of a paranoid character. Yet it is possible to discern in this subdued pastel the outlines of a paranoid criminal.

Of the paranoid trio, *narcissism* is beyond question. Conclusive in this respect are: 1) his marked withdrawing into himself during his pre-criminal periods and his asocial life in

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his hut in the woods, where he realized his childhood desires; 2) his inability to establish an object cathexis; 3) his inability to tolerate social contacts; 4) his rebelliousness against social demands—work and military service—threatening his freedom; and finally, 5) his hypochondriac attachment to his body (autocathexis) stereotypically expressed in his extreme concern over his health, whenever social demands of love, work or military duty are made upon his body—"my body could not stand it." Of cardinal importance is 6) the fanatic-religious quality of his love of nature and freedom, which serves his narcissistic need for seclusion.

E.'s *homosexual disposition* is more difficult to detect. Yet it is undoubtedly indicated by the following traits. 1) Lack of interest in women with a corresponding inhibition against heterosexual relations after his very first experience in this direction; 2) woman-like sentiments, tastes and manners including feminine literary style and handwriting.

It seems reasonable to suppose that, under different conditions, with no fear of legal prosecution and punishment overhanging, and with self-revelation and confession not involving the possibility of greater punishment, in short under conditions resembling those of normal therapeutic analysis, E. would have confessed and manifested more explicit homosexuality. The arm of the law with its blank threat of punishment and its maze of technicalities and pitfalls, is almost the insurmountable handicap of the psychiatrist studying criminal cases. We, therefore, need not be surprised at the scarcity of homosexual manifestations where such were to be more than suspected—because, E.'s family history is one typically conducive to a homosexual disposition. The relation to father is here again as in case of Antonio B. the center of the disturbance. E. is an illegitimate child and never knew his father. His greatest affection was towards his grandmother who gave him a stern religious training. This affection finds expression in E.'s own religiousness and attachment to the neighborhood in which she lies buried. This fixation results in identification with her, and woman in general, which together with his de facto fatherlessness, intensify the situation and constitute the

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homosexual disposition. E.'s relation to father-image undergoes a violent disturbance when his supposed father refuses to acknowledge him as a son, deprives him of his love, and by accusing mother of immortality shakes the boy's belief in her and in woman in general. As a result of this in actual life, E. develops an aversion to heterosexuality.

Fatherlessness and stepfather's refusal to acknowledge him as his own caused E.'s ambivalence that is responsible for his ultimate criminal career. Incomplete identification with father resulted in incomplete identification with society. Hence his intolerance to the demands of social life. Whenever society makes demands on him he will renounce it by withdrawing from it. When he is engaged and is thinking of marrying, he breaks the engagement; when the employer demands co-operation, he quits; when the army, an extremely communal body, demands his membership, he deserts and hides. In each case he defends himself by regressing to narcissistic seclusion. Criminalcy in his case must be considered an end-effect of his ambivalence to father and the consequent lack of unity and strength of his Super-Ego.[10] It may be remembered that his stepfather not only refused to acknowledge him but also threatened him and his mother. His antagonism to society is, therefore, a kind of defense against the external world, which, like father, threatens him. Ordinarily his antagonism is asociality. In the end, however, he becomes anti-social. When society makes its utmost demands upon him, i.e. conscription, he becomes definitely criminal in his acts and even foolhardily revengeful—throwing stones at houses, firing shots. This cropping up of E.'s aggressiveness is a derivative of his latent homosexuality. Just as in the case of paranoia proper the outbreak of the delusion first occurs when latent homosexuality is threatened with a crisis of either realization or renunciation, where-

[10] The inclination to excessive projection in paranoia as well as in paranoid character formations is partly attributed by W. Reich ("Der triebhafte Charackter," 1925) to what he calls the "isolation" of the elements of the Super-Ego ("Isolierung des Ueber-Ich"). Those parts of the Super-Ego which have not been sufficiently amalgamated in early childhood with the whole personality, but remained isolated components of it, may (by projection) easily undergo the paranoid displacement from the Ego into the outside world (p. 108). Reich also mentions Paul Schilder's term, "breaking up of Super-Ego elements." ("Auflockerung der Ichideale") in schizophrenia.

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by greater demands are laid upon the defense reserves of the Id or the Super-Ego to oppose any serious disturbance of the status quo—so in our case of the paranoid criminal, criminality makes its appearance on the occasion of the great temptation: the temptation implied in the prospect of becoming a member of that highly masculine organization, the army. This prospect awakens in him his deeply rooted libidinous longing for father and his fear of him. From this he escapes by radical regression to narcissism. His return to nature (mother earth), seclusion in the hut near his grandmother, and his decision to remain there at all costs, is a manifestation of his escape from the Oedipus-represantive—society, "father." He steals and breaks into houses for no other reason than to be able to live secluded in his hut.

No wonder that E. develops an hysterical psychosis when arrested. The Ganser syndrome with anxiety and visual hallucinations of "men attacking" him testify to his libidinous ambivalent attitude to the Oedipus-authority. He loves and fears father, he desires him and shuns him. The psychosis is a compromise-formation into which he flees from this inner conflict.

Now, to the question of *projection*. Again, as in the case of Antonio B. we must not expect a full fledged paranoiac delusion since we deal with a less pronounced formation of a paranoid character. However, E. reveals definite traces of projection. E. clearly regards the demands of society as an attack upon his freedom. He even regards them as attacks upon his body—"my body could not stand it" he says in justifying his desertion and in throwing up his disagreeable jobs. The dreams which he reports having had in childhood and youth as well as during his Ganser episode are anxiety-dreams of definite persecutory character.[11] A typical one is that of the "three soldiers who shoot at him." Perhaps it will be clearer now why E. throws stones, and fires guns; he regards those who object to his burglaries and try to stop him, as his pursuers, and desires to revenge himself on them, even though this

[11] Differential analytic studies of dreams of paranoiacs have not yet been made. Cases under my observation, however, suggested to me that their delusion of persecution is likely to enter into the manifest dream-picture, almost without disguise.

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exposes him to danger of being caught. His boasting about money he had stolen—again an act which may result in his arrest—is another outlet of his revengeful attitude towards the people. This again is in accordance with the second part of the fundamental projection formula: "I hate father, because —father hates me. . . ." We may now add the criminal variation: ". . . I must revenge myself on father and father's world." All this means that E. seeks justification for his anti-social acts or that he is another example of a *nuerotic Super-Ego criminal.*

Our study of the paranoid character would not be complete if we did not say at least a few words about the non-criminal paranoid character—the paranoid within the law. Such characters are quite common but generally pass as not remarkable from a character-pathology standpoint because they are more asocial than anti-social. In fact, this type is not considered pathological at all and generally not diagnosed or classified as such. These clinically symptomless, but frequently offensive, even if, for one reason or another, admirable characters must, however, be considered pathological since they are subject to chronic tension and suffering which is typically unrelated to organic or traumatic causes. This category includes names celebrated in arts, literature and science, as for example Byron, Lermontov, Strindberg, etc.

The case of M. Y. Lermontov, one of the major classical poets of Russia, is particularly interesting on account of its striking parallelism to the case of our simpleton, Engelbert K. Lermontov, too, was brought up by a grandmother and became attached to the Caucasus country largely because his grandmother stayed with him there in his childhood. To continue our irreverent comparison of the famous poet with our chore-man Engelbert, Lermontov's life and poetry are also characterized by extreme narcissism, fanatical love of freedom, rebelliousness, aggresiveness, inability to get along with people, insubordination and general misanthropy as contrasted with his great love of nature. In the "Hero of our Time," which is generally recognized as a distinctly autobiographical product, we find such confessions:

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. . . I love enemies, though not in the Christian sense. They amuse me, stir my blood. To be always on one's guard, to catch every glance, the meaning of every word, to guess intentions, to crush conspiracies, to pretend to be deceived and suddenly with one blow to overthrow the whole immense and laboriously constructed edifice of cunning and design—that is what I call *life.*

. . . I, for my part, am ill-adapted for friendship. Of two friends one is always the slave of the other, although frequently neither acknowledges the fact to himself. Now, the slave I could not be; and to be the master would be a wearisome trouble, because, at the same time, deception would be required. . . .

. . . In addition to that, I have a further conviction, namely, that, one very nasty evening, I had the misfortune to be born. . . .

. . . why did I not wish to tread that way, thrown open by destiny, where soft joys and ease of soul were awaiting me? . . . No, I could never have become habituated to such a fate! I am like a sailor born and bred on the deck of a pirate brig: his soul has grown accustomed to storms and battles; but, once let him be cast upon the shore, and he chafes, he pines away, however invitingly the shady groves allure, however brightly shines the peaceful sun. . . .

. . . I sometimes despise myself. . . . Is not that the reason why I despise others also? . . . I have grown incapable of noble impulses; I am afraid of appearing ridiculous to myself . . . over me the word "marry" has a kind of magical power. However passionately I love a woman, if she only gives me to feel that I have to marry her—then farewell, Love! My heart is turned to stone, and nothing will warm it anew. I am prepared for any other sacrifice but that; my life twenty times over, nay, my honor I would stake on the fortune of a card . . . but my freedom I will never sell. Why do I prize it so highly? What is there in it for me, For what am I preparing myself? What do I hope for from the future? . . . In truth, absolutely nothing. It is a kind of innate dread, an inexplicable prejudice. . . . There are people, you know, who have an unaccountable dread of spiders, beetles, mice. . . . Shall I confess it? When I was but a child, a certian old woman told my fortune to my mother. She predicted for me *death from a wicked wife.* I was profoundly struck by her words at the time: an irresistible repugnance to marriage was born within my soul. . . . Meanwhile, something tells me that her prediction will be realized; I will try, at all events, to arrange that it shall be realized as late in life as possible. . . .

In his sexual life Lermontov was apparently romantic-erotic but he formed no exclusive attachment of duration. His sadism is expressed both in the military career, insubordination to authority and the antagonistic relationship with fellow-officers

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which often ended in duels. He was killed in a duel which he had arranged to take place at the edge of a precipice so as to end fatally for the defeated. His poetry was of the Byronic school, tragic-rebellious, self-pitying, mysterious, seeking, imbued with thirst for freedom and romantic love of nature.

There are also paranoid characters far less explicit than any which have been described in this paper; in fact, the paranoid structure becomes apparent only after deep analysis. Such "character-analysis" will reveal the paranoid trio perhaps only faintly, with the sadism frequently converted into masochism. The sadistic tendencies are deeply repressed and turned upon the individual himself. In one of my analyses of a paranoid character of this type I discovered a general state of inhibition, inability to find his position in life, in spite of his talents, and mild depressions, concealing an underlying sadism. The projection mechanism took the form of unfounded complaints against lack of recognition, hatred, unfriendliness and insincerity on the part of people, and against a disrespecting and exploiting attitude of society towards him. This type of personality is generally well known, but its characterological structure is rarely examined.

We see then that the paranoid character may or may not result in criminalcy; in other words, criminal activities are not essential but incidental to paranoid structure. It is, therefore, untechnical to speak of "criminal character" or "criminal personality" since criminality may be merely one of several outlets of a more fundamental and more consequential pathological character formation. There is no more reason to speak of "criminal character" *per se* as of a "vomiting" or "headache"-character.

A fateful mal-distribution of libido energy from earliest childhood and a resulting pathological development of sexuality seems to be the stratum of at least one type of criminal. Study of paranoid character formations seems, therefore, to be essential to a better comprehension of some cases of criminalcy and delinquency, and should be of as great a value to criminologists as to psychopathologists.

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Concluding Comment

Medicine is generally defined as the science of disease and the art of treating it, disease signifying abnormal conditions of both body and mind. Diseases of the mind, however, were not considered the proper province of science even as late as the beginning of the nineteenth century. Yet, the mental component of disease has always been more or less recognized; the recognition fluctuating with the tide of battle between materialism and idealism in natural science.

Just as there is at present a universal tendency towards a monistic interpretation of nature, with time and space united in a four-dimensional universe, there is a similar trend in physiology and medicine to abolish the sharp distinction between body and mind and to substitute a united body-mind concept in their stead. Of course, there are reasons for this trend. We realize more and more the powerful physical consequences which mental suggestion and states of mind may produce and, on the other hand, the deep psychological effects which somatic ailments may cause. We have learned how inextricably inter-connected somatic and psychic symptoms may be in such diseases as vasomotoric neuroses and dermatoses, neuroses of the heart, many pain-symptoms, etc., and we are further surprised to discover that such diseases can be alleviated by approaching them from either side, the somatic or the psychic.

In spite of this, psychopathology has been a stepchild in the family of medical sciences, gaining begrudged recognition only after many years of struggle against an exclusively bio-physical concept of disease. This situation was perhaps not unjustified, for not so long ago psychopathology was almost entirely in the hands of philosophers, literateurs and dilettantes. Today, however, psychopathology is a natural science based on objective observation and analysis, and, must be recognized an essential branch of medicine to be accorded the same careful attention and conscientious treatment as anatomy or physiology.

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The First Psycho-Analytical Clinic

On April 11, 1927, at Tegel, near Berlin, Germany, the first Psycho-Analytical Sanitarium was opened, to be known as the Tegel Castle Hospital. The founder, Dr. Ernst Simmel of Berlin, intentionally chose the name "Clinic" in order to emphasize the fact that the resort, with its beautiful and quiet location, not only offers its patients the advantages of a sanitarium in meeting their convalescent and recuperative needs, but above all also cures special diseases, by a specific method. The guiding principle in this hospital is that of approaching disease from the psychic standpoint, in addition to the clinical one, which in a good many cases is by itself inadequate.

The only method capable of fulfilling these purposes has proved to be the psycho-analytic method of Sigmund Freud, for this alone opens to medical science the path to that deepest layer of the human psyche, "the Unconscious" which encompasses the most important roots of many illnesses. Experience has shown that a large group of serious nervous disorders having such causation are inaccessible to treatment by the psycho-analytic method because of the impracticability of keeping them under care and observation during treatment and the impossibility of treating them while ambulant. Among such disorders are, severe obsessional neuroses needing especial attendance, borderline psychoses who are too ill to fulfil the demands of reality in family and social life, and above all a large number of addicts (Morphinists, Cocainists, Alcoholics).

Previous experience with the psycho-analytic method which the founder and his colleagues brought to their enterprise, as well as the results of the first three years work in the hospital assure them that they have taken the right road. It is to be hoped that Tegel Castle Hospital will continue to serve in justifying the intention of its founders, namely, in furthering the battle against the excess of neurotic misery which exists in the world today.

The hospital which originated from private initiative, still requires personal sacrifice on the part of the staff in order for them to remain true to their purpose. For this reason a company has been formed in order to raise their capital from 90,000 to 300,000 Marks. Among the original shareholders are Professor Sigmund Freud, Princess Marie Bonaparte, and Dr. René Laforgue. Additional shareholders are needed and anyone interested in becoming a subscriber should address Herrn Rechtsanwalt, Dr. Robert Hilb, Kurfurstenstrasse, 88, Berlin, W. 62, Germany, from whom further information may be secured.

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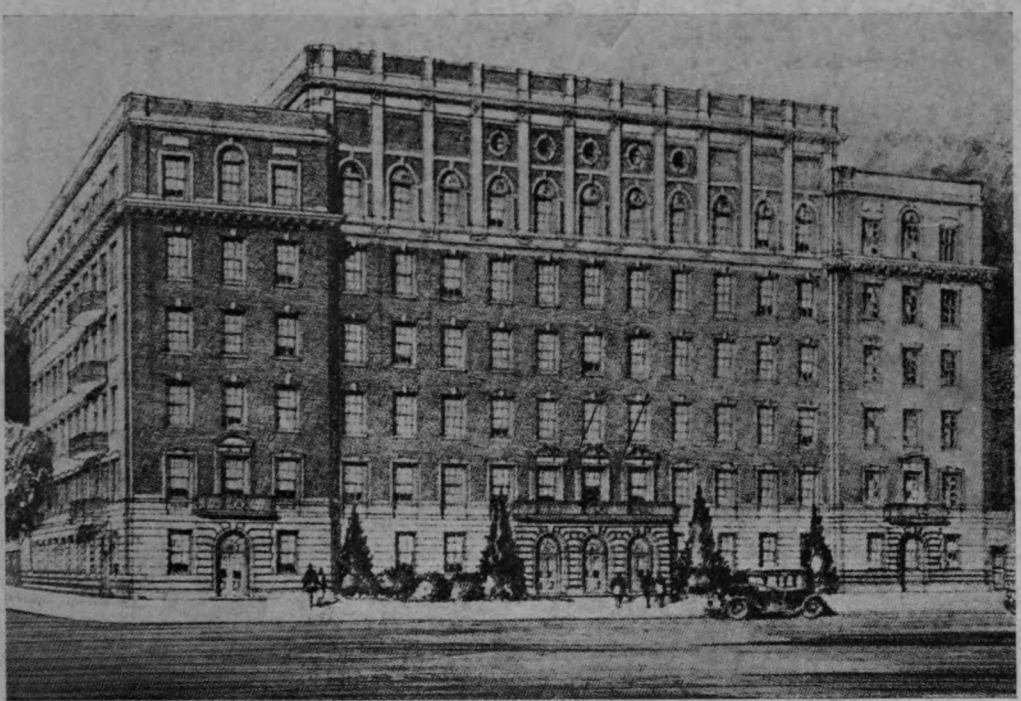

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Foundation of Journal: The Medical Review of Reviews was founded in 1895 by Daniel Lewis, M.D., M.A., Ph.D., LL.D., Professor of Surgery, New York Postgraduate Medical School and Hospital; Commissioner of Health, State of New York (1892-1904); President, New York County Medical Society (1884-86) and Medical Society of the State of New York (1889); Vice-President, New York Academy of Medicine (1896). The Medical Review of Reviews was the first medical journal in America to devote itself to abstracts and to publish a monthly Index Medicus. These features became unnecessary and were eliminated when numerous periodicals added abstract departments and the American Medical Association began the publication of the comprehensive Quarterly Cumulative Index Medicus. The Medical Review of Reviews is now devoted to original contributions on general medicine and public health.

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Bilateral Ovarian Dermoid Cysts*

Report of a Case

By FRANK C. HAMMOND, M.D., Sc.D., F.A.C.S.
Professor of Gynecology, Temple University School of Medicine; Gynecologist, Temple University Hospital, Philadelphia.

Dermoid tumors of the ovary constitute about ten per cent. of all ovarian tumors, and are usually limited to one side. Bilateral involvement occurs in a varying estimate from 3.5 per cent. to ten per cent.

Howard A. Kelly refers to a case in which he unexpectedly made the diagnosis by a vaginal puncture under the impression that the fluctuating sac choking the pelvis and bulging into the vagina was a pelvic abscess. The discharge of fatty matter at once revealed the true nature of the case. This occurred in the case herewith reported, and no doubt has been duplicated by other operators.

In operating for a dermoid cyst of the ovary, it would be a good procedure if the opposite ovary is at all enlarged, to incise it in order to determine whether or not a small cyst may be concealed within it. When feasible resection of the ovary should be done in preference to removal.

The following interesting case is reported, in abstract. D. M., white, married, aged 25, was seen in consultation at her home, 12/7/29, when the following history was obtained. Mar-

*From the Gynecological Service of the Temple University Hospital.

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ried five years, one living child, and three induced abortions. Patient was apparently in good health until about six weeks previously, when she noticed a profuse yellowish vaginal discharge. As the husband was under treatment at the time for acute gonorrhea, the attending physician suspecting gonorrheal involvement in the wife had smears taken, which were positive for G. C. About three weeks previously a regular menstrual period occurred, accompanied with lower abdominal and pelvic pain, and fever. Her physician was sent for, and the patient was ordered to remain in bed. The pains continued with increasing severity for several days, and then continued daily with varying degrees of discomfiture. During this time the morning temperature ranged from 100°F. to 101°F., and the afternoon temperature fluctuated from 103°F. to 104°F. and higher. During the past two weeks severe rectal tenesmus at time of defecation.

A few days before the consultation her physician observed a fluctuating mass in the left pelvis, and suspecting a pelvic abscess, requested consultation.

At the time of consultation abdominal palpation elicited tenderness and rigidity throughout the entire lower abdomen, more marked on the left side. There was a mass in the left lower abdomen extending about half way to the level of the umbilicus. Pelvic examination revealed excruciating tenderness in the vault of the vagina, and a fluctuating mass bulging into the posterior vaginal fornix. A diagnosis was made of pelvic abscess of gonorrheal origin, and vaginal section advised.

On 12/9/29 the patient was admitted to the gynecological service of the Temple University Hospital. On admission P. 100, T. 101°F., R. 20. The following laboratory findings were recorded as of day of admission.

Urinalysis negative. Blood: Hb. 92%, R.B.C. 5,300,000, W.B.C. 13,450, P.M.N. 73, S.L. 15, L.L. 9, Trans. 1. Sedimentation test: Index 27 m.m., time 60 + minutes. Smears from cervix, vagina and urethra were positive for gonococcus.

On the next day after admission, under ethylene anesthesia, posterior vaginal section was done. Several ounces of yellow pus, without odor was evacuated, the terminal portion of which

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was heavily blood streaked, which was followed by a large quantity of fatty matter containing numerous short, straight black hairs. Gauze drainage was placed in the vaginal section. During the following eight days the temperature ranged above or below 100°F., on the ninth day was normal, and remained so until the twelfth day when the patient was discharged from the hospital.

The postoperative convalescence was uneventful.

Final examination on day of discharge: There was marked induration in the left pelvis, without tenderness, no palpable mass above the symphysis, the vaginal incision was practically closed, very slight vaginal discharge, and no pain nor discomfiture. General condition good.

As a result of the findings at the time of operation the diagnosis was changed to dermoid cyst of the left ovary. The speculation then arose, did the pus come from a suppurative cellulitis, and the cyst had become adherent to the pelvic floor, with a breaking down of the sac at the point of contact, or was it a suppurative dermoid cyst, the infection having originated from acute pelvic gonorrhea.

The patient was advised upon her return home to place herself under the further care of her physician, looking forward to readmission to the hospital for removal of the dermoid cyst. Her physician was duly advised as to the subsequent care and attention.

The patient was readmitted to the hospital 1/30/30. General condition good. States that she has been having a brown very foul vaginal discharge for past few weeks. Upon pelvic examination the uterus was found tender, the right ovary palpably enlarged, and apparently adherent high in the pelvis, the left ovary enlarged, not palpable above the brim of the pelvis, and densely adherent in the cul-de-sac.

The laboratory report of urine was normal. The blood: Hb. 80%, R.B.C. 4,290,000, W.B.C. 13,650, P.M.N. 74, S.L. 19, L.L. 7.

On 2/1/30, an abdominal section was done under gas-ether anesthesia. A chronic appendix was first removed. The left ovary was densely adherent to the floor of the pelvis, filling

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the left half of the pelvis. The remaining portion of ovary was free of adhesions. The right ovary was slightly smaller than the left, grossly pathologic, and moderately adherent in upper portion of the pelvis, dermoid cyst of this ovary, however, not suspected. Several loops of ileum were moderately adherent to the pelvic viscera. Uterus lifted out of pelvis by the ovarian growths. The uterus was markedly chronically inflamed.

The loops of ileum were easily dissected free, the right adnexa fairly easily released, but the left adnexa required tedious dissection at its base, and when released the point of rupture was easily demonstrated, but sufficiently closed to prevent any spill of its contents. A bilateral salpingo-oophoro-supra-vaginal hysterectomy was done.

The laboratory report is as follows: *Gross Description:*

1. Specimen consists of a uterine fundus 6x5x4 cms. Its surface is ragged and red except for a small portion on the exterior surface which is smooth, glistening and pink. The tubes are not attached. The wall is salmon pink and tough, the uterine vessels are thick and hard. The endometrium is salmon pink and smooth.

2. The right ovary is 6x4x3 cms. It is pale pink and its surface is ragged. One half of it fluctuates and the other half is pultaceous. The fluctuating half when incised is found to contain a cyst in which there is a red yellowish clot with some clear fluid. The pultaceous part is a cyst also measuring 3 cms. in diameter. It is filled with a yellow butter-like substance and some hair. Its wall is thin and smooth. It is thickened, red and ragged. Several nodules project from it. One contains a clear fluid, one a dark red, soft, friable material.

3. The left ovary is 8x6x4 cms. Its surface is smooth and pink. It also has a cyst within that measures 5 cm. in diameter. The contents here have a fecal odor and are red, grey, very soft and very granular. There is a hard irregular nodule 2 cm. in diameter from which there project several bodies like canine teeth. The remaining portion of this ovary is firm and homogeneous. The attached tube is like that of the other side.

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4. The appendix which is 6 cm. long and 8 cm. in diameter accompanies the specimen. The serosa is pink and glistens. The wall is thick and tough.

Formalin fixation. Routine technique. Histological Description:

The wall of one of the cysts described above and apparently the foul smelling one has an inner lining which is only partially complete composed of squamous epithelium. In the zones devoid of this epithelial covering there is a layer of fibrin and polymorphonuclear leucocytes. Beneath this surface layer there are large numbers of mononuclear cells. A definite fibrous capsule surrounds the cyst. Beyond this there is the ovarian stroma which contains very few cells. A second cyst examined contains many red blood cells. Its wall is formed of several layers of large polyhedral cells possessed of a foamy cytoplasm. Other sections of the ovary show a number of corpora albicantia. The fallopian tube shows a very much thickened wall, The villi possess an intact epithelium but are thick and infiltrated by mononuclears. The section of appendix shows a relatively normal mucous membrane. The submucosa, however, is very dense and infiltrated with fat.

Diagnosis: Bilateral dermoid cyst; corpus luteum cyst of ovary; chronic salpingitis; fibrosis of appendix.

The patient had a comfortable convalescence. There was a temperature range between 99°F. and 102°F. for seven days, then the temperature slowly dropped to normal by the eleventh day. The patient was discharged on the sixteenth day free of all symptomatology, and has remained so, other than vasomotor symptoms incident to the artificial menopause.

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Pyloric Obstruction

*A Consideration As to Its Etiology, Symptomatology and Treatment, With a Case Presentation**

By H. Brooker Mills, M.D., F.A.C.P.

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Kerman Snyder, M.D.

Interne in the Temple University Hospital.

Much has been written in recent years dealing with the subject of obstruction at the pyloric outlet of the stomach in infants, but even as early as 1787 Hezekiah Beardsley first gave a description of the symptoms of an infant suffering from an obstruction at the pylorus. He laid emphasis on the narrowness of the lumen and the scirrhous condition of the mass found at the pylorus. Since then observers have found that when an actual stenosis at the plyorus exists there is an increase in the circular fibres and the connective tissue of the pyloric sphincter, and redundancy of the mucous membrane. This, plus a tendency to spasm, produces the complete occlusion. Cases, however, will vary; some may show signs of complete obstruction and be due to spasm with only moderate hypertrophy, while in other instances the spasm, even though reduced to a minimum, persists because of the hypertrophy.

There are many theories concerning the etiology of plyoric obstruction, but only a few receive any degree of support.

According to Hirschsprung, as quoted by Stern, primary hypertrophy of the pyloric muscle occurs; on the other hand, Hector Cameron, as quoted by Stern, states that there is an in-coördination between the circular and longitudinal muscular fibres at the pylorus. He claims that the failure of the relaxation of the sphincter is the resistance which leads to the hyper-

* From the Pediatric Department of the Temple University Hospital, Philadelphia, Pennsylvania.

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trophy of the pylorus. Thomson Scott believes the spasm is primarily due to irritation caused by liquoramnii swallowed during intrauterine life, and hypertrophy followed. Still others claim that hypertrophy is secondary to some irritation of the stomach or duodenum, possibly a hyperacidity or a food that is not acceptable for digestion. Frederic Still, of King's College, London, is certain that obstruction is due to the spasm of the pylorus primarily, and that the hypertrophy is the result of the spasm. This he has proven by autopsies on chlidren who have had pyloric obstruction, and who have died of intercurrent diseases.

In view of the above, we cannot therefore regard the classical division of pyloric obstruction into that of stenosis and spasm as simple as the older text-books would lead us to believe; however, most teachers agree that a true spasmodic obstruction hardly exists without some hypertrophy, and also that very often it is hard to differentiate the above two forms.

Whether the hypertrophy be primary and spasm secondary, or whether the spasm precedes the hypertrophy, the symptomatology of any given case must of necessity depend upon:

1. The degree of spasm.
2. The degree of hypertrophy.
3. How far the condition has advanced.

In about 93% of the cases the condition occurs in the first born male child. Most commonly the onset is from the tenth to the seventeenth day following birth, in rare instances as late as the tenth week.

The first symptom is that of a propulsive vomiting occuring during or immediately after nursing, the vomitus containing only the milk ingested, usually having undergone no change and almost never containing any bile. The amount may vary and may include the residue of the preceding feeding. Changes in diet have but a temporary effect. The child is usually extremely hungry; the breath is not sour; when permitted to go on there is marked progressive loss in weight.

Constipation varies directly as to the amount of food that is permitted to pass the pylorus.

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When stools are present they are dark in color, have a faint musty odor, show little or no food elements, and are composed of mucus, bile and the intestinal secretions.

Usually these patients are of the hypertonic type. They respond to external stimuli very acutely; their extremities are often in a spastic state, and are more commonly found in families with highly neurotic tendencies. Therefore, because of this, one is led to believe that spasmophilia plays no little part in this condition.

Visible gastric peristalsis and often a tumor mass can be demonstrated, particularly when stroking the skin over the gastric area, or permitting the child to take some feeding during the examination.

There is a marked discrepancy of opinion among the various authors as to the percentage of cases in which a mass is palpable at the pylorus. Our own experience is that, when definite obstruction is present, in the majority of instances a palpable tumor mas is an outstanding early physical sign.

In the cases that have been observed at the operating table, or those that have come to autopsy, the degree of stenosis found has varied from a mere hypertrophy of the muscular structure and connective tissue of the pylorus to a hard whitish tumor of almost cartilaginous consistency. The lumen may be so narrow that even water cannot be forced through. Usually the stomach wall shows some hypertrophy, particularly the fibres towards the pylorus. The stomach is usually dilated and may be enlarged to almost 1½ times the normal size.

Illustrating the above is a case admitted to our service on September 16, 1929.

Baby M. T. W., age 2 weeks, female, first born, weighing 5 lbs. 5 oz. Birth weight was 6½ lbs.

The child on admission was moribund; the temperature was subnormal, 96° rectal. The extremities were cold and clammy, and the skin showed marked dehydration and cyanosis. There was marked circulatory collapse, the pulse being faintly palpable. The respirations were so irregular that at times we thought they had ceased entirely. The fontanelles were depressed; the skin of the chest and abdomen was covered with a

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pink macular rash, and the buttocks were extremely excoriated.

Child was a full term normal delivery; was bottle fed from birth, and three days before admission the present illness began with very frequent green watery stools, as many as ten to fifteen per day. Vomiting occurred usually during or immediately after feeding, and was propulsive in character, but some food was retained. The child was on a milk and water and malt sugar formula. On admission no tumor mas was palpable; peristalsis could not be observed; the abdomen was sunken; there was no cranio-tabes; no snuffles; no enlarged spleen or liver, nor any other stigmata of congenital lues. There was no evidence of congenital heart disease. The parents were highly neurotic individuals. The mother was 28 years of age, always sick, and suffered from a great deal of nausea and vomiting during pregnancy.

Immediately following admission 80 cc. of normal saline was given intraperitoneally. External heat was applied, and stimulation in the form of whisky was given in its feedings. The child showed definite improvement within one hour. Eight hours later 125 cc. of normal saline was again injected intraperitoneally.

Feeding was instituted by giving the child one ounce of a calcium caseinate mixture in barley water every 2 hours. The following day a gastric lavage of 5% soda bicarbonate solution was given, and again saline solution intraperitoneally, and from then on during the next eleven days fifteen injections of normal saline were given intraperitoneally to maintain body fluids. At no time was there any evidence of peritoneal irritation nor discomfort, with the exception of hiccoughs developing after some of the injections, which were relieved by elevating the head end of the crib.

Because of the persistent vomiting, a modified Sauer formula of thick farina feeding was instituted, which was well retained. Creta preparata gr. V. was included in each feeding for the first 3 days.

Gastric lavage of soda bicarbonate solution was performed daily.

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Atropin sulphate solution 1-1000 m. i. was given before each feeding.

The x-ray reports, made by Dr. G. C. Bird two days after admission, read as follows:

At the end of 6 hours after the barium meal the barium was still in the stomach, indicating stenosis or spasm; at the end of 24 hours the stomach was empty.

"There was no evidence of enlarged thymus."

Two doses of .5 cc. of parathormone were given at intervals within a period of 2 weeks, and yet at the end of that time the blood calcium estimation was only 7.5 mg. per 100 cc. Soon after the thick cereal feeding was instituted the diarrhoea changed to constipation.

The weight remained stationary during the first week, no loss being noted. During the second week the child gained 5 ounces, and from then on until date of discharge there was a gradual gain in weight, so that at the end of 2 months the child weighed 8 lbs.

At various periods during the stay in the hospital the child manifested signs of marked nervous irritability and tendency to hypertonicity.

Calcium bromide was given, and also heliotherapy. On the date of discharge the child was retaining a liquid formula with sufficient caloric value for proper nutritional balance.

We present this case with the view to illustrate the various points in the above discussion, but, more than that, we feel it has demonstrated that, with the proper technique, the judicious use of intraperitoneal administration of normal saline becomes a life saving measure in these cases.

Whether or not the primary cause was a pylorospasm or stenosis, or whether the primary cause was due to a gastro-intestinal upset with vomiting and diarrhoea resulting in dehydration and demineralization, the blood chemistry was so altered that, unless fluids and particularly normal saline were quickly and abundantly supplied, nothing but a fatal outcome could have been looked for.

A further study of this case will lead us to question whether this pylorospasm was precipitated by an acute gastro-intestinal

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derangement, with the resultant change in the general systemic condition of the child so that the spasm could be considered a local manifestation of tetany, or was it primarily a pylorospasm, with vomiting and diarrhoea as its symptomatology.

We consider this case one in which the digestive disturbance was primary, and that an underlying neurogenic basis was the factor that probably led to a true spasm at the pylorus.

SUMMARY

1. The etiology and symptomatology of pyloric obstruction are discussed.
2. A case is presented illustrating:
   (a) A moribund dehydrated infant.
   (b) The onset that of an acute gastro-enteritis.
   (c) Fifteen administrations of intraperitoneal saline solution during a period of 11 days, with no peritoneal irritation.
   (d) X-ray report—pyloric obstruction.
   (e) The spasm was treated by thick cereal feeding, atropine, gastric lavage, parathormone and heliotherapy.
3. Conclusions drawn seem to favor the idea that in this particular case pylorospasm was secondary to a gastrointestinal disturbance.

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The Wedding of the Gases

By Robert F. Ridpath, M.D.

With a sigh of weariness the learned chemist leaned backward in his leather-covered chair, and from absolute exhaustion sank into unconsciousness. Although forty, the long-drawn expressionless face seemed much older, for his has been a hard life; not from real manual labor which tires the muscular elements but whose life is out in God's free air, but one whose vocation has kept him indoors confined within four walls. Working all night upon a chemical problem whose secret remained as yet unsolved, he had at least unwillingly succumbed to the over-taxed nerves and was now recuperating in the silent and gentle realm of sleep.

Imprisoned within glass-stoppered beakers were two little beings whose life pulsations could not be felt by even the chemist's most sensitive micrometers, and whose very existence was known only by two words. One beaker was labeled "Hydrogen" gas while the other had written in large letters, "Oxygen." While the contents were all too apparent, the real love-throbbing personalities were never dreamed of. Known to millions of other gas souls, these two were mourned as lost, and although many friendly gases had looked in upon them in their constant traveling through blue etherial regions, their perfect transparency rendered them unrecognizable to even these. They, however, knew each other, and longed for the time when they should again be united, and many, many times their little voices could be heard comforting each other in their cruel chemically forced separation.

"Do you know, Oxygen dear, that I have been thinking all night of the wonderful times we had when we were a few drops of water playing with our companions in the brooklet on Farmer Jones' place; how we bubbled with glee and how the sun's beams penetrated the leafy bowers overhead and cast golden rays upon us. And golly! how we did shine and sparkle and dance with joy. Oh, yes! Do you remember the two children that came to play with us—the little boy and girl. Taking their shoes off and sitting on the grassy bank, they plunged their little pink toes into us; and we laughed and gurgled with

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glee. The little girl, when her foot touched us hollered with all her might, 'It's cold!' and as she drew back we tried to ripple up to her to hear her childish cry again. And then, wishing to be as brave as her playmate, she finally took courage and plunged them in so quickly that it almost hurt us. And don't you remember how the sun-fish swam after us and tried to gobble us up, and how we took shelter and hid under the little girl's toes, and the fish swam around and around and couldn't find us."

"Oh, yes! Hydrogen dear, I remember all these things. I remember, too, when the big man came and captured us in a glass bottle and brought us up here and by his nasty chemical process separated us into gasses and put us into these nasty old bottles. Hydrogen dear, if I could only reach just a part of you I could cry my heart out. But here I am, bottled up in this glass thing and able to feel only one half of the sensations to which I am entitled. If bottles were only hearts this one would have broken long ago."

"Now then, little Oxygen, you must not go on so. Don't you know that every cloud has a silver lining? Haven't we been there and know? Please try to smile a little. Did you ever hear of children being born with a hare lip? Well! see, dear, how much luckier you are. You haven't a hare lip. Why you are a perfect little bit of gas just as pure as crystal. Now take heart because something is bound to happen sometime, and when it does, we will be all the happier because, having been separated, we now know each other's worth."

"Yes, that is so, Hydrogen, but it seems an awfully long while just the same. To be so near and yet unable to even touch you!"

While this little dialogue was going on, Mother Nature in her kindest mood, had at last overheard them, and pitying their separation, had gathered her forces together. Clouds overcast the skies and lightning flashed here and there, ever drawing nearer to the imprisoned lovers. Suddenly the current of one blinding shaft struck the beakers, casting the broken glass in all directions. The gasses, now free, embraced and with joyous tears in their eyes joined their sister elements by dripping over the sill of the open window and were lost in the deluge of rain.

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THE OBSTETRICAL REVIEW CLINIC

A Post-Graduate Course in Practical Obstetrics, with Reports of Cases, Clinical Conferences, Answers to Queries, etc.

Conducted by J. O. ARNOLD, M.D., F.A.C.S.
and his Associates in the
Department of Obstetrics, Temple University School of Medicine

Address all communications to "The O. R. C.," Temple University Hospital, Broad and Ontario Streets, Philadelphia, Pa.

[By way of explanation it may be said that the "divers and sundry clinical material" appearing from month to month in the O. R. C. is selected and presented with the primary purpose of helping the GENERAL PRACTITIONER, *and with an especial thought of its interest to the* MEDICAL ALUMNI *of Temple University.—J. O. A.]*

Item 87—Alike But Different! Two cases of antepartum hemorrhage—Two nice little problems in differential diagnosis—Two widely differing conclusions as to treatment and prognosis. Such is our first presentation to the O.R.C.

Both of these patients came under observation at practically the same time, and both are now in the hospital.

One, Mrs. E., 33 years old, at the end of the sixth month of her seventh pregnancy, and the other, Mrs. M., 22 years old, at the end of the seventh month of her second pregnancy. Both had begun to bleed within 24 hours before admission to the hospital. Both had been "safely frightened" by the appearance of hemorrhage, but neither had bled enough to do any noticeable harm to mother or child, and both babies are found to be alive and normally active.

Both patients have temporarily ceased to bleed since admission to the hospital.

Both are equally unaware of any assignable cause for the onset of hemorrhage except perhaps a little more than the usual physical activity.

In both the bleeding came on, not only without recognizable cause, but without appreciable pain—"causeless, painless hemorrhage!"

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In both, however, the description of the onset would lead one to infer that there had been fairly strong, though painless, uterine contractions.

Both patients are free from any symptom of toxemia, or other intercurrent or organic disease.

Why did they bleed? And what is to be done? What is the diagnosis, and what the treatment?

Of course you cannot answer these questions without more data, or *can* you? "Causeless, painless hemorrhage," especially in the second half of pregnancy, you say, nearly always means placenta previa. Yes, *nearly* always! *How* nearly? Enough to include both of these patients? We'll grant that your diagnosis is apt to be correct in at least *one* of them, but *which* one, and what about the other one? There are some points in the history that may be helpful. Mrs. E. had an abdominal operation three years ago, and we find the scar in the mid line above the symphisis is prominent, and the region round about is excessively sore on pressure. This patient also states that at the time of her abdominal operation, her uterus was "fastened in place," and the neck of the womb was sewed, but that the stitches did not hold, and she was advised by her doctor, to have that part of her operation done over. This second operation was put off from time to time, until she found she was pregnant, and then, of course, it could not be done. So much for a suggestion of a possible source of bleeding in the case of Mrs. E.

In the further study of the history of Mrs. M., we find absolutely nothing to help us understand the source of her "causeless, painless bleeding." After a searching review of the history, in such cases, the next most important step in the diagnostic investigation is to try to locate and definitely outline the placenta, by careful auscultation. This "Rule No. 2," was applied in both of these patients, and gave us the following very helpful findings. In Mrs. E. the placenta is distinctly outlined in the upper right fundus, and does not extend into the lower uterine segment, and therefore is clearly *not* "previa," and since there is not now, and has not been at any time, the slightest pain or soreness to touch over this area of placenta

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location, we can definitely say that the bleeding in her case, is not placental in origin.

And since she has, in her ventro-suspension, and in the deep unrepaired laceration of her cervix (verified by vaginal examination), a plausible source and explanation of the relatively small amount of bleeding she reports, we can give this patient a good prognosis, and can safely allow her to leave the hospital with her pregnancy undisturbed, and in large measure, unendangered.

But not so good for Mrs. M. Auscultation very clearly locates her placenta largely, if not wholly in the lower third of the uterus, on the right side. How nearly it extends to the os, or to what extent it has been disturbed on its lower border, can not, of course, be made out by auscultation, and we do not favor or permit internal examinations in such cases—they are usually unnecessary, and always dangerous. Hers is undoubtedly a case of ectopic placenta, and she must not be permitted to leave the hospital, and a very guarded, if not positively discouraging prognosis must be given for the baby. This because of its small size and very evident immaturity. A relatively safe and satisfactory caesarean delivery might be done at once, and remove all uncertainty, except for the baby. With so much prematurity, Caesarean could hardly be justified, unless uncontrolable hemorrhage demanded it. But such is not the case. There is now no bleeding. There may be none for weeks to come, and the child's life may thus be saved—or she may have to be delivered tonight, and the child's life sacrificed. Who knows? And not knowing, we dare not permit her to be without constant watch, under circumstances most favorable for immediate attention, in case of alarming hemorrhage.

Thus our conclusions, and temporary disposal of these two patients. One is placenta previa, the other is not. One remains to meet her inevitable dangers under comparatively safe conditions; the other goes home with assurance of relative safety, though not without cause for suffering, and occasional small hemorrhage.

Whether or not we have recklessly violated the classic rule as to "no expectant treatment in placenta previa," remains to be seen.

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We hope to be able to make final report on these two interesting cases, in next month's O.R.C.

Item 88—Final Fetal "Struggle," followed sooner or later by the birth of a dead child, has often been noted, and is again brought to the attention of the Clinic, by a patient admitted to the hospital a few days ago.

A woman 34 years old, in her third pregnancy, and probably two or three weeks overdue. This, together with the fact that she had not recently felt fetal movements, led her to consult her family doctor who made a diagnosis of a dead child, and a dangerously delayed labor, and brought her to the Temple University Hospital for treatment.

Upon examination, there was no question as to the correctness of the diagnosis. From her clearly stated history, there was likewise no doubt as to the exact time of the death of the child. Twelve days before, while sitting quietly in her home, she had suddenly felt an unusual activity of her child—as she expressed it "a struggle" such as she had never before experienced, after which it was quiet, and she had not since felt its movements, though she did feel some kind of activity in her abdomen. (Uterine movements?)

This was undoubtedly the unsuccessful efforts of the child to free itself from the asphyxia of an obstructed or entangled cord, and was so typical of the history obtained in numerous other cases of prenatal death, that I did not hesitate to note on her chart the date, and cord asphyxia as the probable cause, of her child's death.

Labor was induced, and was unusually difficult, because of a large child, a shoulder presentation (not uncommon when the child has been dead awhile), and a fairly large intra-mural fibroid. The significant finding, however, was a cord 58 inches long, instead of the average 22 inches.

Item 89—How Far Past Maturity may the pre-natal life of the child extend, or when and why does the child perish, if labor does not take place?

In the past eight months, this Clinic has had two cases that have raised these questions, but so far as we know, have done little to help us answer them.

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One, a case of extrauterine pregnancy at full term (reported in detail elsewhere), and the other, paradoxical as it may seem, a case of "extra-abdominal uterine pregnancy," in both of which there was no labor, and surgical delivery was necessary.

In the first—the abdominal pregnancy—an unusually large, well developed child reached maturity, perished, and was removed by abdominal section two months later. Why did the child die? Is there a definite limit to prenatal life? Is "maturity" a distinct entity, so far as the unborn child is concerned?

Think these questions over, while I tell you briefly about the second case. This woman is a short, rather stout, and decidedly *strong* individual, 40 years old, who has given birth to numerous babies in recent years—on an average, one a year for the past fourteen years—the first six or eight of which births were so commonplace as to cause no difficulty and attract no particular attention! After that, however, there was so much diastasis of the abdominal muscles, and with each succeeding pregnancy, so much stretching and falling outward and downward of the fundus of the uterus, under the ever increasing size of its burden (the last few babies ranging from 11 to 12 pounds) that by the time she reached her eighth month, in her 13th pregnancy, there was a complete turning upside down of the uterus, practically outside of the abdomen, with the fundus extending almost to the level of her knees. In this most extraordinary condition, she went on to term, without going into labor (was the uterus any longer *capable* of labor?), and continued nearly a month past her expected time, only applying for help, when she no longer felt the movements of her child, and despaired of ever seeing its birth. At that time, dealing with a dead child, we undertook delivery by the normal route, resorting to embryotomy, and having more than two hours of the hardest work that any obstetrical "wrecking crew" ever experienced. The reassembled parts of the child weighed nearly 12 pounds. The mother had a perfectly normal convalescence, and soon became pregnant again.

This time we did not permit her to wait for labor, or until the child perished unborn. When she had again carried her extraordinary extra-abdominal burden reasonably near to the

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date of expectancy, we brought her to the hospital, photographed and skiagraphed her, and delivered her by Caesarean operation, of a strong, healthy child weighing 11½ pounds. Again recovery was normal and rapid.

The skiagraph in this case, enabled us to present a rather curiously contradictory diagnostic picture. Our findings were undoubtedly those of a head presentation, while the roentgenologist as clearly showed a breech presentation, and as you can readily understand (from the pictures shown), both were right. The head was at the os, and the breech in the fundus; obstetrically this constitutes a head presentation. In the picture, the head is above and the breech below, and skiagraphically this constitutes a breech presentation!

In order to effect delivery through the anterior wall of the uterus, it was of course, necessary for assistants to bring the fundus back to somewhere near its one time normal habitat, and hold it there for the operation.

Needless to say that the request for sterilization in this case, was unanimously granted.

Item 90—Sudden Relief, and unexpectedly rapid recovery in cases of the more or less grave toxemias of pregnancy, sometimes has a significance that should not be overlooked in evaluating the methods of treatment used, as the following case will illustrate:

Mrs. W. G. C. Age 37, para 5, had had eclampsia in the seventh month of pregnancy, three years ago. She was again pregnant something over four months, when she came to the attention of the Clinic, suffering from constant headache, with high blood-pressure and albuminuria.

After more than a week's treatment with rest in bed, restricted diet, and active elimination, including blood-letting to the extent of about 20 ounces, she was temporarily improved, but soon had return of symptoms as bad as before, with a blood-pressure ranging around 200. Then rather suddenly within 24 hours her headache ceased, the blood-pressure dropped more than 50 points, and she felt entirely relieved, and happy over the prospects for the future of her pregnancy.

Notwithstanding the fact that careful observation revealed

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no evidence, subjective or objective, of threatened abortion, or uterine activity, I felt very strongly inclined to attribute her sudden relief of symptoms to the death of the ovum, and so stated at the time, making note of this explanation of her sudden recovery, on her case-record, along with a very doubtful prognosis for her pregnancy. Her improvement was so rapid, that in two days time she was almost entirely free from any sign of toxemia, and was allowed to go home.

The sequel to this case, is interesting; not merely because it verified an unwelcome and somewhat doubtful diagnosis of unexplainable fetal death, but because it confirms once again, the more or less problematic relationship of the various toxemias, and living pregnancy. Within three weeks after this patient left the hospital, and with absolutely no return of her toxemia, she had almost a painless and bloodless miscarriage.

In the light of such a case, therefore, it would appear to be very unwise to too hastily credit a sudden cure of hyperemesis gravidarum, pre-eclamptic toxemia, or even eclampsia itself, to your wonderfully successful treatment. All of these conditions may suddenly find relief in the death of the ovum, or fetus.

Item 91—Once a Caesarean, twice a caesarean, but not always a caesarean!

I show you this patient to refute the dictum so often heard, "once a caesarean, always a caesarean," and to enable me to emphasize at least one point that means more, and is of greater practical value than this arbitrary rule.

Ten days ago, this young woman, after about 15 hours of moderately severe labor, had an easy forceps delivery resulting in the birth of a strong, healthy child weighing 8½ pounds.

As you see, both are now normal and well. This mother has two other children, one 5, and the other 3 years old, both of which were born by caesarean delivery.

In each of the former pregnancies, as the patient approached the date of expectancy, she developed a well marked pre-eclamptic toxemia, with pain and other evidences of especial involvement of the left kidney.

This condition, together with the fact that in each instance,

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there was a breech presentation, in a moderately contracted pelvis (2 c.m. below normal), and therefore the likelihood of a difficult, and under the circumstances, dangerously prolonged labor—made caesarean delivery the method of choice. The fact that each operation was followed by an absolutely afebrile and rapid recovery, permitting the patient to go home in 10 days, would seem to have proven the wisdom of the method of conducting those former deliveries.

This record of clean recovery, and therefore of a strong uterine wall, following the former operations, together with the fact that in this third pregnancy there was entire freedom from toxemia, and a normal head presentation, made it justifiable this time, to give our patient the test of labor, with the happy results that you now see.

This clinic, in the past 20 years, has had many cases demonstrating the value of the principles herein involved—namely, that a woman may go through labor safely, following one or more caesarean deliveries, *provided* her post-operative temperature record in those deliveries is definitely known to have been afebrile, *and* that the circumstances, and conditions (size, presentation, etc.) of the present case have been carefully studied and found favorable. *Any exception to these rules is too dangerous to be considered.* The Clinic, likewise, has not been without enough unfortunate experiences to warrant the strongest emphasis upon this point.

It has long been our teaching that no matter how favorable the present circumstances and conditions may be, no woman should be subjected to the risks of even the simplest type of labor, following a previous caesarean, (1) If her operative, and post-operative record on that occasion, is not known; or (2) if it is known to have shown a temperature of as much as 100 on two consecutive days, following the day of the operation.

This is not the same as "once a caesarean, always a caesarean," for as the case before us well demonstrates, it is entirely practical to avoid all pre-operative or other sources of infection (vaginal examinations, etc.) and to so close the uterine wound, that an early, clean, firm union will take place, leaving the uterus strong enough to withstand the demands of even a moderately difficult labor, *if properly watched and managed.*

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SCHOOL OF MEDICINE

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Monthly Bulletin of Information

The Chevalier Jackson Bronchoscopic Clinic

In one important respect the TEMPLE UNIVERSITY MEDICAL CENTER has assumed leadership by the establishment of a widely known agency for the conservation of human life. This is the CHEVALIER JACKSON BRONCHOSCOPIC CLINIC, now in active service at the TEMPLE UNIVERSITY HOSPITAL.

As the newly appointed Director of the Department of Bronchoscopy in the TEMPLE SCHOOL OF MEDICINE, Dr. Jackson, who has become world famous through his perfection of the bronchoscope and other devices which permit location of foreign bodies in the lungs and digestive tract, and at the same time make possible the removal of those objects without an operation, will personally supervise the clinic.

Thus, most of the sufferers who come to Philadelphia for bronchoscopic treatment will hereafter be cared for at the TEMPLE MEDICAL CENTER clinic. Dr. Jackson's methods have been observed and studied by physicians from all parts of the world.

The equipment of the clinic consists of a complete outfit for the treatment of patients by direct laryngoscopy, bronchoscopy, esophagoscopy and gastroscopy. This includes all the instruments devised by Dr. Jackson during the last twenty years. The bronchoscopes are used for looking into the interior of the lungs; the esophagoscopes for examining the pass-

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age from the mouth to the stomach; and the gastroscopes for exploring the stomach.

The accessory instruments include a great variety of forceps, hooks and special devices for turning points and edges of foreign bodies so that in their removal no injury will be inflicted on the delicate tissues. Special instruments for closing safety pins are marvels of ingenuity.

Besides the elaborate equipment for the treatment of patients there are two other important groups of apparatus. One is for teaching bronchoscopy, esophagoscopy and gastroscopy, while the other is for research. Teaching is an important part of the work at the clinic. The TEMPLE MEDICAL CENTER has installed an elaborate equipment for this purpose, consisting of mannikins, working models, charts, anatomical material, specimens, instrumental apparatus, lanterns and motion picture machines.—From *Temple University Medical Center.*

Chevalier Jackson Receives Honorary LL.D.

On February 14, 1930, Chevalier Jackson received the honorary LL.D. at the Graduating Day Exercises of Temple University. Dr. Jackson was presented to President Charles E. Beury by Dr. Robert F. Ridpath, who spoke as follows:

MR. PRESIDENT: In presenting this candidate for an honorary degree, I feel that he is so well-known that any introductory speech seems quite unnecessary.

He is known for his wonderful inventions, his voluminous contributions to medicine which have been translated into many languages, his artistic ability, his missionary work in forming clinics through which aid may be given to the unfortunate.

He has been honored by his city, receiving the Philadelphia Award or the Bok Prize in 1927. He has been honored by his state and country. He has been honored by election to the highest offices in the various medical and special societies of his specialty. Graduating from Jefferson Medical College in 1886, he received his Doctor of Medicine Degree. In 1923, the University of Pennsylvania honored him with his Doctor of Science Degree and in 1927, Ursinus College tendered his Doctor of Laws Degree.

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He is known and has been honored internationally, receiving from France the honor of Officier of the Legion of Honor; Chevalier of the Order of Leopold; recipient of the De Roaldes Award in Laryngology; recipient of the Bigelow Medal, 1928; and of the Cresson Medal, The Franklin Institute, 1929.

Professor of Bronchoscopy and Esophagoscopy, Temple University, Philadelphia; Professor of Laryngology, University of Pittsburgh, 1912-1916; Professor of Laryngology, Jefferson Medical College, 1916-1924; Professor of Bronchoscopy and Esophagoscopy, Jefferson Medical College, 1924-1930; Professor of Bronchoscopy and Esophagoscopy, Graduate School of Medicine, University of Pennsylvania, 1924-1930; Lecturer on Bronschoscopy and Esophagoscopy, Woman's Medical College, Philadelphia; permanent William Potter Memorial Lecturer, Jefferson Medical College. Bronschopscopist and Esophagoscopist, Jefferson Hospital, University of Pennsylvania Hospital, Graduate Hospital, and Samaritan Hospital; Consulting Bronchopscopist and Esophagoscopist, Woman's Medical College Hospital, Germantown Hospital, and Babies' Hospital, Philadelphia, and Presbyterian and Western Pennsylvania Hospitals, Pittsburgh.

He has developed the Bronchoscope and by the skillful use of the instruments devised by his fertile mind, thousands have been rescued from fatal consequences. Inhaled foreign bodies are not only removed but by the use of this most wonderful invention, diseases and conditions far within the lung are readily diagnosed and successfully treated.

As his name "Chevalier" indicates "a mighty weilder of the sword" so he has through many hardships and almost unsurmountable obstacles pushed forward that humanity may be relieved.

Verily, Mr. President, were I endowed with the winged words of Homer, still would I be unable to voice his many virtues. Mr. President, I have the honor to present Dr. Chevalier Jackson for the Honorary Degree of Doctor of Laws!

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Pathologico-Clinical Studies in Epilepsy

The American Journal of Psychiatry (Johns Hopkins Press, January 1930) contains a contribution on "Widespread Pressure Atrophy of the Brain, and its probable Relation to the Function of the Pacchionian Bodies and the Cerebrospinal Fluid Circulation." This paper, copiously illustrated, was read at the eighty-fifth annual meeting of the American Psychiatric Association, Section on Convulsive Disorders, Atlanta, Georgia, May 14, 1929. It is from the Daniel J. McCarthy and Memorial Foundations, Temple University, the University of Pennsylvania and the Laboratory of Neuropathology of the Philadelphia General Hospital. The authors are TEMPLE FAY (Professor of Neurosurgery, Temple University School of Medicine, Neurosurgeon to the Episcopal, Philadelphia General and Jewish Hospitals) and N. W. WINKELMAN (Professor of Neurology, Temple University School of Medicine, Neuropathologist to the Philadelphia General Hospital).

The paper was discussed by Dr. Albert M. Barrett, of Ann Arbor, Michigan, who said:

I wish that I were competent from personal experience to contribute something of value to the discussion of this interesting study by Drs. Fay and Winkelman, but unfortunately I can express little more than my personal appreciation of hearing this very important contribution.

Any extensive observation of brains from autopsies on psychotic patients impresses the observer by the frequent abnormal appearance which is found in the membranes and the diffuse varying degree of chronic atrophies of the brain hemispheres. These appearances are quite different from those usually seen in the autopsies of patients in general hospitals. These seem to occur without any of the vascular sclerotic or usual organic processes such as paresis or senility and are usually passed over as chronic meningitis or diffuse atrophies. It is by studies such as these that we will gain a better insight into the nature of these changes. What their relation may be to the distributions of mental functioning remains uncertain.

Dr. Adolf Meyer, of Baltimore, Maryland, stated:

I am somewhat in a similar situation to that in which Dr. Barrett finds himself perhaps not so much from the point of view of my not being familiar with things of this sort under other conditions as because of my not being quite able to distinguish what is epilepsy and what is a general process observed also in other conditions. When I first came to Johns Hopkins

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and had an opportunity to see Cushing's operations, I was really startled by the regularity with which we found the damming up of cerebrospinal fluid over the cortex. That has always impressed me exceedingly strongly so that I quite agree with Dr. Fay that that is an exceedingly frequent and perhaps regular sort of an occurrence. I regret particularly the fact that Dr. Fay did not give us perhaps a few contrasting pictures of the disturbances with epilepsy and of the disturbances without epilepsy, with the findings of the Pacchionian granulations with epilepsy and outsdie of epilepsy. After all, we deal here with an exceedingly varying structure and for that reason ought to have very convincing examples of the various types of kindred disturbances and the correlation with epilepsy.

Drs. Fay and Winkelman reached the following conclusions:

(1) Encephalography has called attention to widespread areas of increased fluid collection and cortical atrophy, confined for the most part to the cerebrospinal fluid circulating pathways, over the cortex.

(2) A definite pathology of the pacchionian bodies has been established.

(3) In the light of the present accepted physiology of the pacchionian bodies, this pathology may predispose or give rise to impairment of cerebrospinal fluid elimination and consequent accumulations of fluid producing pressure along the course of its cortical pathways.

(4) Gross cortical atrophy which has been commonly recognized has been analyzed from the standpoint of vascular, tumor, inflammatory, and increased subarachoid fluid accumulations, and a definite type of "pressure atrophy" has been differentiated from that arising in cases of cerebral vascular occlusion.

(5) Proof is offered that the atrophy probably results from a progressive vicious circle. (a) Pressure upon the cortex due to gross lesions, as well as fluid accumulations. (b) Mild ischemic changes probably secondary to decrease in circulation. (c) Ganglion cell degeneration and disappearance associated with a fibroblastic glial increase. (d) Shrinkage of the cortex and subcortex consequent to pressure and degeneration.

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(6) Comparison of microscopic sections from areas of the same brain, showing in the zones of atrophy, decrease in the number of ganglion cells and glial proliferation, as well as atrophic changes in the subcortex. These areas are usually found in the frontoparietal portions of the brain, whereas, the temporo-occipital regions are not involved in this atrophy, and sections show changes within normal limits.

(7) A possible hydraulic pressure mechanism responsible for the development of certain types of widespread atrophic degeneration of the brain is presented, and may be responsible for many types of gross changes noted, especially in the mentally defective, and chronic epileptic, or degenerative cases showing atrophy of unexplained origin.

Survey Honors Educator

Dr. Charles J. Prohaska, former head of the Department of Physical Education at Temple, and now director of physical education and health of the Connecticut State Board of Education, was selected as one of the sixty leading persons in physical education in the United States, according to a recent survey made by New York University.—*Temple University News.*

Vacancy in Pediatrics

There is a vacancy on the Pediatric Staff. Any one interested should consult with Professor H. B. Mills, Medical Arts Building.

Departments of Instruction

College of Liberal Arts and Sciences; Teachers College; School of Commerce; School of Theology; School of Law; School of Medicine; School of Dentistry; School of Pharmacy; School of Chiropody; School of Music; High School; University Hospitals.

For information concerning any of the above departments write to the Registrar, Conwell Hall, Temple University, Broad Street and Montgomery Avenue, Philadelphia.

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THE SENIOR CLASS

WALTER ORTHNER
REPORTER

Ward and dispensary work has constituted the main activity of the senior medical class this year. With only a few lectures and a small number of clinical conferences, it has been a relief not to sit all day on the benches and take notes. Working as clinical clerks has given the members of the class a wonderful opportunity to fit themselves as internes for the coming year. All case histories, physical examinations, and laboratory work on the patients are assigned to the students. This work is not only confined to the Temple University Hospital, but also extends to the Philadelphia General, the Skin and Cancer, the Shriners', the Jewish, Municipal, and other smaller hospitals.

Interneships have been secured for the coming year by nearly every man, with several appointments still pending. The complete list will follow in a later issue. These appointments comprise the leading hospitals in the city, and extend all over the state, and several nearby states. That Temple graduates are in demand is proved by the great number of requests on file from hospitals all over the country asking the seniors to apply. A number of appointments are by hospitals that previously had no Temple men.

The class enjoyed the Skull Dance given in its honor by the Junior Class on Friday evening, March 7th, at the Adelphia Hotel. The year book, *The Skull,* was formally dedicated that evening to Doctor John Byers Roxby, professor of anatomy, the friend of the class since its first day within the old walls at 18th and Buttonwood Streets. At that time we hoped to see the new school towering above Broad Street before commencement would arrive. Doctor Roxby spoke his sincere gratitude and appreciation for the honor conferred upon him by the graduating class.

The Skull is now in the process of being printed, and will appear early in May. Many innovations will be found due to the ingenuity of its able editor, Carl Kivler. The business man-

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agement rests with Gerald Coll. Both men are assisted by a large staff consisting of members of the senior class.

The class, as a whole, appreciates fully the efforts of our new Dean, Doctor Parkinson, in securing so many able teachers this last summer. We have been happy to learn the newest methods in medical science from these men whose names stand out in the annals of modern medicine.

What appeared to us as dreams in our freshman days, as far as a new school, rating, and faculty are concerned, have come true. This has been an inspiration to every member of the class to strive to advance equally as rapid in his profession, so that Temple will be proud of her graduates. They are ones that can carry her name to great heights in medical lore.

THE JUNIOR CLASS

CHESTER REYNOLDS
REPORTER

The annual Skull Dance was held at the Hotel Adelphia in the Crystal Ball Room, March 7, 1930. This dance is given every year at Temple Medical School by the Junior class in honor of the outgoing Senior class. In other words it is a traditional affair sponsored by the Junior class. It is the final official meeting of the two upper classes, at which time they bid farewell to each other.

Both classes were well represented, as well as the faculty. Dean Parkinson was numbered among those present. During the intermission the Seniors were welcomed to the dance by the President of the Junior class. He was followed by the President of the Senior class, who thanked the Juniors for their kindness in inviting the Seniors to the dance. At the same time he presented the "Skull," which is the Senior yearbook, to Dr. John Byers Roxby, Professor of Anatomy at Temple University Medical School. It had been known for sometime that the Seniors had dedicated their year book to Dr. Roxby, but this was the first public announcement of their choice.

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Dr. Roxby then entertained us for a few minutes in his usual brilliant style. He very modestly stated that he did not know why the Seniors had chosen to honor him in the dedication of the year book. However, such a statement was unnecessary, because every person there from a Freshman to a Senior knew right well why he was chosen. His kindness, fairness, advice, and ability as a teacher have endeared him to all the students who have come under his influence as a teacher and a friend.

The selection of Dr. Roxby has the hearty approval of the entire student body.

Dancing continued until one o'clock. Everyone had a good time, the affair being a success in every respect. The Committee, consisting of

Stanley Golubiewski, *chairman*
Samuel Greenfield
Harry Cherkin
Herman G. Rubin

is to be congratulated on its selection of dance hall, programs and orchestra.

All in all the Skull Dance was a delightful affair. Here is hoping that it continues as an integral part of the student activities of Temple University Medical School.

THE SOPHOMORE CLASS

LOREN H. CRABTREE
REPORTER

THE HICKEY PHYSIOLOGICAL SOCIETY is of particular interest to students who are engaged in the study of physiology, and for that reason the sophomore class strongly supports this society. Its members, however, are drawn from all four classes.

That the programs of this year have been of exceptional merit is evidenced by the following topics which were very ably discussed at the meeting: "Drugs Affecting the Cardiovascular System," by Dr. A. E. Livingston, professor of pharmacology, Temple; "Thrombo-angiitis Obliterans," by Dr. A. C. Morgan, former professor of therapeutics, Temple; "Arthritis,"

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by Dr. Thomas Klein, professor of therapeutics, Temple; "Ano-rectal Infections," by Dr. Collier F. Martin, professor of proctology, graduate school, Pennsylvania; and "Dr. Price, the Man, the Citizen, the Surgeon," by Dr. James W. Kennedy.

The most unusual features of these programs have been the presentations by students who preceded the principal speakers. With one or two entirely justifiable exceptions, these presentations were given without the aid of notes of any kind. In some instances, reports on original work by students were given.

The fine type of work being done by students in connection with the Hickey Physiological Society is an answer to those who maintain that pre-clinical medical education is ineffective.

The laboratory of pathological anatomy may be a good place to conduct sophomore exams, but most certainly does not lessen the morbidity of the outcome.

Harold Goldberg gave a very vivid physical demonstration of the general systemic effects of a toxic dose of resorcin, but was unable to similarly demonstrate the excretory effects when called upon to do so by Dr. Scheele.

The class insists that Joe Cava either cease wearing loud ties, or else declare himself.

Following a recent bit of advice from Dr. Hickey regarding the orderly arrangement of physiology laboratory equipment and the possible result of failure at same, several of the boys have been seen reading literature from the local army recruiting station.

The splendid success of the freshman dance has caused some regret among us that we did not remain true to tradition and hold a sophomore-freshman dance. That we may make amends, we are arranging a program of high grade specialties which will be given by the faculty under the auspices of the sophomore class for the entertainment of freshmen and their families. The program and arrangements are complete with one exception—we can't find a prof who plays the bull fiddle. We have the bull, or rather, the fiddle, and we hope to locate the artist soon. Watch the next issue of this publication for the complete program.

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THE FRESHMAN CLASS

LEO V. HAND
REPORTER

In accordance with the policies inaugurating a new era in the history of Temple University School of Medicine, for a bigger and better school we find the class of '33 entering the portals of our medical school a bigger and, what we fondly hope, better class than the classes of previous years. This freshman class without a doubt is the largest class to enroll at Temple Medical School, numbering one hundred and ten students, representing all sections of the United States, indeed a cosmopolitan gathering. Time, plus the generosity and mercy of our teachers, will bear out our hope of being the better, if not best, class to be enrolled at our medical school, despite the dire warnings of a few of our excellent teachers; which to quote: from Dr. Roxby, "You pass this way but once, *check* and *double* check." Again that famous quotation from Dr. Fanz, "Gentlemen!—if you are faithful to your books you need not fear, but you pay your money so you take your choice."

Indeed while on the subject of teachers it will be well to express the opinion of the class concerning our teachers. In affection and regard, it is hard to say which teacher is foremost in the feelings of the class. Dr. Roxby with his intense interest plus keen wit, has been a big factor in giving a discouraged freshman a "boost" in the proper direction in anatomical studies. Dr. Saylor, with his simplicity and conciseness in the presentation of an extremely difficult subject of biochemistry, is another big factor in helping the bewildered freshman. Dr. Fanz, ably assisted by Dr. Gault, has gone far in making that dry and technical subject of bacteriology an interesting and live subject despite his implied suggestions that, in most cases, death is the ultimate finis of each of his specific examples, illustrating the dangers of certain bacteria. Dr. Pritchard, our guiding light in histology and embryology, is aptly living up to his title of "The Black Prince." The word prince cannot be over-emphasized, for he certainly has been a

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prince in deed as well as word; this being noted in his untiring efforts to have the students grasp his subjects plus a keen reluctance to "flunk" any students. Drs. Wolffe and Stull are two more true friends of the freshman despite Dr. Stull's desire to scare the boys at times. Last but not least we have Dr. Weigand in histology, Dr. Shrader in chemistry, Drs. Herman, Boston, Glausers, Weisser and Siegel in anatomy, all doing their bit as friends and teachers in their respective subjects.

In the order of sequence in the high lights of our freshman year, we pass from the educational slant to the all-important social aspect. The first event of importance was, the election of our class officers; the choice of the class for its leaders will exemplify the characteristic features of any body or group, i.e., always obtains the best. For the all-important office of president of the class, Mr. Edwin Lavin, was our choice, and his manner fulfilling this important office has been a pleasing justification of the high regard the class places in "Ed." As a worthy co-officer with Mr. Lavin, we have Mr. Kenneth Reinheimer, occupying the position of vice-president. Ken, or "Dutch" numbers among his characteristics a genial personality and a keen mind that are requisites for an officer of our class. For the office of secretary we have a witty and versatile fellow-student, J. Edwin Pugh, the qualifications of whom are observed in his duties and work in many instances. "Ed." is indeed an asset to any group or class. Last but not least is a man we cannot praise too much for his excellent manner of handling that particularly difficult and thankless office of treasurer. The man of the hour is John J. Freeman, and indeed he has been doing excellent work in keeping our treasury out of the red by his incessant but thankless job of checking up on our class dues. Yes, indeed, the freshman class has chosen its officers with care and forethought as to their ability, which is seen constantly in their actions and fulfillment of duties.

The second important feature in the activities of the class of '33 was the Freshman Medical Frolic, or the big class dance of the year. To describe the dance, it will suffice to quote Dr. Roxby, "It was the finest dance I have attended in quite

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some time, excellent not only in management, setting and music, but especially so in the conduct and manner of co-operation manifested by every individual attending the dance." The dance was one of the big social events of the medical school. The dance committee, headed by Mr. Walter J. Rogan, through their untiring efforts and management of this affair have lived up to the high standards characteristic of the class of '33. We of the class of '33, take this means of publicly thanking the chairman, Mr. Rogan, and the members of the various committees, together with all those individuals through whose cooperation the dance was such a success.

In closing we of the freshman class, while the largest class and seemingly the "freshest" class, wish to express our appreciation to the upper classmen, our teachers, our Dean, Dr. Parkinson, Dr. Beury, our President, and the members of the Board of Trustees of Temple University, for their interest and untiring efforts in our behalf in regards to observing and obtaining all necessary requisites for the proper education in the medical profession.

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Physiological Basis for Tests of Heart Function

By Morris H. Kahn, A.M., M.D.

Introdhction

The functional capacity of the heart is a subject of importance from the purely physiological standpoint.

Clinically it assumes practical and commanding significance. The efficiency of the vasomotor system, the nervous system and the condition of the other organs of the body all affect the adequacy of the heart's action. These factors are variable, closely related to each other and create the difficulties in the clinical application of any test for the functional capacity of the heart.

Most of the tests of heart function are based upon the circulatory changes produced by muscular exertion.

A more or less complete analysis of heart function, particularly from its clinical aspect, therefore, would comprise the following studies:

I. Significant physical signs and symptoms.

II. Blood pressure studies and the estimation of the absolute amount of work done by the heart.

III. Cardiovascular response to a general demand for increased circulation.

1. Methods depending upon variations in pulse rate.
   a. The effect of change of posture upon the pulse rate.
   b. The effect of exercise on the pulse rate.
2. Methods depending upon variations in blood pressure.
   a. The effect of change of posture upon the blood pressure.
   b. The effect of exercise upon the blood pressure.
   c. The effect of increasing arterial resistance on the blood pressure.

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IV. Tests of efficiency of the right side of the heart.
V. The polygraph.
VI. The electrocardiograph.
VII. The Roëntgen ray and orthocardiograph.
    1. The variations in the size of the heart during and after work.
VIII. Metabolic changes in impaired heart function.
    1. Vital capacity of the lungs in relation to heart function.
    2. The elimination of salt as an index of heart function.

The aim of testing the functional capacity of the heart is essentially to determine its response to a demand by the muscles or organs of the body for increased blood supply. The complex processes of life call for cardiac reaction not alone in response to muscular and organ action, but also to visual and auditory stimuli not measurable in terms of physical work.

Changes in flow of the blood throughout the body may be occasioned by nervous influences, vascular dilatation and contraction, and by alteration of the heart's action. The first two factors are very variable.

It is the aim of functional diagnosis to estimate the functional integrity of the heart as a pump, to learn if the heart may submit to the usual demands of active life, and if it can undergo an anticipated amount of strain, such as is entailed by exercise, anesthesia, child-birth, febrile toxemia, etc.

Functional diagnosis should also serve as a clinical index of the increase or diminuation of the heart's efficiency with the course of time.

In a comprehensive study of the heart's efficiency, therefore, it should be our aim to ascertain which of the various portions of the cardiovascular mechanism are intact and which are deranged, to what extent the derangement of structure and function affects the circulation of the blood, and to what degree it affects the normal activity and longevity of the individual.

The complementary action of the vasomotor system is very important in maintaining adequate circulation. This factor is

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different in different individuals and its variations are perhaps the greatest source of error in determining the efficiency of the heart.

Perfect functioning of the heart would imply a state in which all the qualities of the cardiac structure are normal and coördinate. In no organ is exemplified to a higher degree the fact that the mutual dependence of functions is proportionate to their specialization. If any of the qualities are deranged, to that extent will the normal function of the whole organ be disturbed. The recognition of such derangements of function and of their significance forms a part of the study of the efficiency of the heart.

I have endeavored in the series of experiments here briefly reported and reported in full in the Annals of Internal Medicine, to ascertain and determine the influence of venous filling upon (1) the heart rate, (2) the carotid pressure, (3) the heart volume as determined especially by the plethysmograph, (4) the intraventricular pressure curve in the left ventricle, and (5) the influence of dilatation of the right heart upon the electrocardiogram.

Method

The experiments were performed on dogs, attached horizontally to an operating board. The latter was so arranged as to pivot on a bar at the level of the dog's heart so that the position of the dog's heart could remain unchanged whereas the hind legs could be lowered or raised with the heart at the axis.

After tracheotomy, the carotid artery was cannularized to yield the blood pressure readings, recorded through the medium of sodium sulfate solution leading to a mercurial manometer.

The jugular vein was opened and a long metal or glass cannula inserted down into the superior vena cava to register the central venous pressure.

Through this cannula, injections were made of definite varying amounts of isotonic solutions and their effects noted. Normal saline was employed; and to eliminate the difference in viscosity, a solution of 5 per cent. gum acacia in saline as

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well as Ringer's solution was used in some of the experiments.

The thorax was opened and the anesthesia maintained by insufflation. Records were obtained of intrapleural pressure changes.

In some experiments, a plethysmograph was applied over the ventricle of the heart and the effect of the injections noted. In other experiments, a sulfate cannula manometer was inserted into the left ventricle and the intraventricular pressure changes were thus recorded by means of the apical manometer. This registered the variations of the left intraventricular pressure as affected by the increased venous filling.

Electrocardiograms were taken to note the effects of increased venous filling upon the heart mechanism and, especially in the later stages, to note the effect upon the electrocardiogram of marked dilatation of the right heart such as took place in these experiments.

In some experiments venous filling and change of venous pressure was obtained by change of posture of the animal.

Influence of Change of Posture on the Central Venous Pressure and on the Heart Rate

The influence of change of posture on the heart rate was determined experimentally mainly because this method has been advocated as a clinical test of the functional capacity of the heart.

1. Change of posture with relation to the heart increasing the central venous pressure produced increase of the heart rate but no characteristic effect on the respiration rate.

2. Change of posture with relation to the heart changed the intra-carotid pressure characteristically; an elevation of the main field of the circulation above the level of the heart raised the intra-carotid pressure, and a lowering below the heart level diminished it.

3. Parallel effects are seen in the changes in the central venous pressure; i.e., raising the body above the heart level raised, and lowering the body below the heart level lowered the intracaval pressure.

4. As in the later experiments, the quickening of the rate of

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the heart with change of posture was found to be reflex in origin since it no longer occurred after the division of the vagi nerves.

Discussion From the Clinical Aspects

Henderson and Haggard found that systolic and diastolic pressures, measured by the sphygmomanometer method in man, failed to increase when a person is tilted on a board from a horizontal to a head-down position—a procedure obviously increasing the venous return and auricular pressure.

This is difficult to understand since their experiments were always attended by heart rate changes, and in view of my experiments and certain clinical studies which I have previously made. I have shown that changing the position of the arm alone even, as in elevating the elbow, produces changes in the blood pressure of the arm as the result of both vasomotor and hydrostatic effects upon the column of blood. I showed that the normal effect of raising the arm is a progressive fall of the systolic and diastolic pressure readings as the arm is raised upward; the amount of fall increases with the elevation.

We may, therefore, consider the effects of posture on the heart action as parallel with the effects of venous filling or changed venous pressure and shall incorporate and correlate the results of these experiments with those in which injections of isotonic solutions were made.

The Influence of Venous Filling on the Heart Rate

Increased venous filling by means of injection of isotonic and isothermal solutions produced an increase of the heart rate depending upon the quantity injected and the rate of injection. The viscosity of the solution played no part in this reaction as Starling and Patterson have found in their "heart-lung" preparation.

I found that the character of the injected fluid, except in so far as this raised the venous pressure, did not alter the cardiac response. But, contrary to Bainbridge, I found that the amount of injected fluid and the rate of injection did distinctly affect the response of the heart.

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Discussion From the Clinical Aspect

As early as 1833, Donnell showed that the pulse rate is normally slower in the recumbent than in the erect or semi-erect position. Schapiro made the observation that the normal difference disappears when the heart is seriously weakened.

Hogerstedt and Graupner noted the return of the pulse difference after the effect of digitalis upon the heart was established. In 100 cases recently tested, it was found that the slowing of 7 to 15 beats per minute which recumbency normally produces is diminshed or altogether lost in cases of incompetent valvular disease or when the heart is seriously weakened by any cause. Geigel found that a variation of pulse rate above 30 between lying and standing or an inversion of the normal relationship between lying and standing indicates a weakened heart function.

In a group of 124 men with clinically normal hearts studied by me, the pulse rate rose an average of 16 beats on change from the seated to the erect posture. The variations from the average were comparatively slight; the maximum rise was 28 in a few cases, and the minimum in one case was 0; the most frequent figures were 12, 18, 24.

Psychic factors may considerably disturb the correctness of the estimate in any particular case. The normal increase from reclining to standing posture should never be more than 20 beats per minute.

From the postural experiments on dogs, one might question why the heart rate should not increase with recumbency since that position increases the venous filling. The explanation probably lies in the fact that in the erect position, the lessening of aortic tension, as Osborne has shown, causes reflexly a quickening of the rate.

Prevel considers the mechanism causing the acceleration of the pulse on changing from the reclining to the upright position an abdomino-cardiac reflex. The contents of the abdomen slide down, inducing the acceleration of the pulse as the gastric ramifications of the pneumogastric are stretched.

The variations of the pulse rate following exercise were the first to be studied in their functional significance. Mendelsohn

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and Graupner estimated the length of time it takes for a normal heart to return to its previous rate after a measured amount of work. The time it takes for any given heart to return to normal after a definite amount of exercise was then suggested as a measure of its functional capacity. The longer the time it takes to return to the normal rate, the less efficient the heart is considered.

Mendelsohn asserted it as a principle that, the greater the amount of work done with prompt return to the normal rate, the greater is the functional capacity of the heart. He emphasized the point that the amount of work should be considered as of relative value only. Absolute amounts of work cannot be laid down as the normal for any person because the capacity for work varies with the weight, muscular development and general makeup of the individual.

Influence of Venous Filling on the Blood Pressure

From one standpoint, it may be theoretically assumed that the increase in heart rate and the pressure changes that follow venous filling are analogous to those changes that take place after exercise. Muscular work mechanically increases the amount of blood returning to the heart. Tachycardia, as has been shown, would result in a measure proportionate to the amounts of work performed in a given period. Upon the subsidence of the work, the cardiac intake diminishes and the heart rate promptly falls.

Normally, an increase in systolic pressure takes place simultaneously with the work and in a way this is proportionate to the amount of the work. The pressure rises to its highest point at the end of the exercise, and then promptly falls within a period of two minutes. Upon this principle are based a number of tests of the functional capacity of the heart as evidenced by its reaction after exercise.

From my experiments conducted on this subject, it appears that venous filling is followed by a characteristic form of pressure curve depending upon the amount of solution injected, the time in which it is introduced, and the previous condition of the heart and circulation.

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For the convenience of description, the three curves that take place may be called the primary or immediate rise, the secondary rise and the delayed rise.

It would seem that overwork of the heart muscle stimulated by venous filling occasions, or at least markedly exaggerates, what may be called "a delayed rise of blood pressure."

When, however, the heart has been excessively overfilled and an injection subsequently made, the form of curve although still maintaining the same outline, becomes more level throughout and the changes are not so marked.

Discussion From the Clinical Aspect

Arno Lehndorff showed experimentally in 1908 that stimulation of the splanchnics produces their contraction with increase of blood pressure to a varying degree. If the heart's action becomes insufficient, however, the blood pressure falls. With the recovery of the heart's contraction, the pressure rises again.

Some years ago Barringer described a test of heart function, using Graupner's method of making frequent readings of the pulse rate and systolic blood pressure after a measured amount of work and clinically obtaining Lehndorff's experimental results in insufficiency of the heart.

The theoretical considerations Barringer presented as follows:

Muscular work increases the CO_2 content of the blood. This stimulates the nervous centers controlling the suprarenal glands. An increase in the adrenalin content of the blood is thereby produced, which causes a constriction of the vessels in the splanchnic area and a resulting rise in blood pressure. The quickened heart rate accompanying muscular work causes an increase in the quantity of blood discharged by the heart per minute and this also contributes to the rise in blood pressure.

The systolic pressure during work therefore mounts rapidly and the left ventricle finds it more and more difficult to expel its contents against this increasing resistance. At a certain height of aortic pressure the ventricle probably does not empty itself completely and a steadily increasing volume of blood

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remains in the heart after each systole. In other words, an insufficiency exists. At this moment the Roëntgen ray would possibly show a heart decidedly increased in size. If the work stops, the CO_2 content of the blood falls, the activity of the suprarenal gland decreases and the splanchnic vessels relax. The blood pressure therefore begins to fall. But the heart now works more efficiently against the lowered aortic pressure and expels a larger quantity of the increased residual blood at each stroke until it finally empties itself completely with each systole. The increased quantity of blood which the recovering heart thus throws into the aorta more than compensates for the lowered pressure. The pressure therefore again rises briefly. This delayed rise of blood pressure after the cessation of muscular work is the significant point in Barringer's test.

When the work stops, if the heart is much dilated, it probably requires a short time to reach its maximum efficiency to expel its increased content and there results a slowly mounting blood pressure.

The clinical experiments reported by Barringer and others indicate that in blood pressure reactions to graduated work we possess a valid test of the heart's functional capacity. If the systolic blood pressure reaches its greatest height not immediately after work, but from 30 to 120 seconds later, or if the pressure immediately after work is lower than the original level, that work, whatever its amount, according to Barringer, has overtaxed the heart's functional capacity and may be taken as an accurate measure of the heart's efficiency.

Barringer found that the delayed rise in systolic blood pressure was obtained after large amounts of work which varied normally according to the subject's physique and condition of muscular training.

In a subsequent study of Barringer's method, Rapport asserted that Barringer's method of ascertaining the shape of the blood pressure curve excludes the variations of pulse rate and blood pressure; they may be an exact expression of real events, but do not indicate the capacity of the heart to do work.

It would therefore seem that my experiments present an experimental basis for the Barringer tests in which a delayed

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rise of pressure occurs when venous filling is excessive. Barringer's hypothesis and explanation of the mechanism of the occurrence of the delayed rise in his clinical studies admit of some question, especially as there is no experimental proof to show that the H ion concentration of the blood and the increased adrenal content produce the changes that are described.

Influence of Venous Filling on the Intraventricular Pressure Curve

Viewing all the experimental evidence in the light of the more fundamental work of Blix, Hill and others on skeletal muscle, we must be ready to admit that the dynamic efficiency of the ventricle may be fundamentally determined by such factors as initial length, diastolic surface-volume relation, and initial tension.

The ventricles are filled to capacity even under very low auricular pressures. It would seem that any additional increase in volume must necessitate a stretching of the elastic and tonic walls of the ventricle. This requires an increased auricular and increased initial pressure. The pressure required to stretch the walls sufficiently to admit a definite volume increase need not be great, if the tonus is low; but must be considerable if it is high.

The effect of venous filling on the intraventricular pressure as evidenced by the tracings obtained by means of the optical manometer is quite characteristic. As has been shown by Wiggers, any sudden increase in venous filling which increases the volume of the ventricles always promptly elevates the initial tension and pressure-maximum in both ventricles. After the injection of solution there is definite increase in the systolic discharge in a few seconds. Toward the end of the infusion, a further elevation initial or maximum pressure in the ventricles is observed.

When the arterial resistance increases as by mechanical compression of the aorta as was done in one of my experiments, the initial pressure is elevated. This is due to the dilation of the ventricles that it causes, i.e., to increase in the length of the muscle fibers. It is by overdistension of the right heart, due to the high venous pressure, that the heart finally fails.

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Discussion From the Clinical Aspect

Normally the wave caused by the auricles discharging their contents into the ventricles may be absent from the cardiogram of the apex beat or may present itself as a slight elevation just preceding the systole of the ventricle. The resistance to the auricular current offered by the wall of the ventricle is analogous to that offered by contracted vessels to the systole of the heart.

There are two important conditions which would have the effect of increasing the size of the wave due to auricular systole: (1) Relative hypertrophy of the auricles with increase in the force of their impulse and (2) loss of tonicity of the ventricles with dilatation and thinning of their wall.

(1) With reference to the wave "a" of the cardiogram in cases of mitral stenosis, it shows itself as a thrill or series of waves at the beginning of systole and not as a distinct single impulse.

(2) Loss of tonicity of the ventricular muscle increases the prominence of the "a" wave in the apex curve. In this condition the heart lies markedly dilated against the chest wall. The rise of the "a" wave is abrupt, the curve of filling is steeper than normal.

The Influence of Venous Filling on the Production of Extrasystoles

Among the abnormalities of cardiac mechanism induced by venous filling extrasystoles are particularly frequent. They are apparently of ventricular origin. They occur in most instances only after the heart has been considerably distended by fluid. Their first appearance is usually immediately upon the injection of a large quantity of fluid at the height of the primary rise of blood pressure. They promptly disappear and do not recur if the heart is not further tried. They occur at the time of greatest heart strain, and when the demand upon the heart is greatest for a readjustment of its action.

Influence of Venous Filling on the Heart Volume

Changes in the length of the muscle fibers, as Frank, Paterson, Piper and Starling and others have pointed out, may be

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evaluated most satisfactorily by studying the changes in the ventricular volume during consecutive phases of the heart cycle.

Paterson, Piper and Starling found that when the venous inflow increases, the ventricles are more distended in diastole and the systolic discharge increases. The initial tension in the left ventricle, however, may not increase, but, on the contrary may actually be lower. Nevertheless, the intraventricular pressure-maximum appears to rise.

Straub found that when the inflow rate is increased, the two ventricles dilate somewhat and expel larger systolic volume. The intraventricular pressure curves taken from the two ventricles showed differences. In the right ventricle, changes similar to those reported by Wiggers were constantly observed, i.e., increased diastolic filling always occasions an increased initial tension and a higher pressure-maximum. In the left ventricle and in confirmation of Starling's results, no changes in initial tension occur although the pressure curves did become somewhat higher. According to these results, the increased discharge of the right ventricle is unable to affect the diastolic filling of the left sufficiently to cause an elevation of initial tension.

The plethysmographic curves taken in my experiment show an increase of the ventricular portion of the heart in its diastolic volume, a diminution in its systolic volume, and therefore an increased intake and output as a result of venous filling.

The Influence of Venous Filling on the Electrocardiogram

I endeavored to ascertain if pure dilatation of the right ventricle will produce an electrocardiogram indicating right ventricular preponderance.

I therefore obtained the three leads of an electrocardiogram from a normal dog. I then injected about 1000 c.c. of gum saline solution through the jugular vein and repeated the electrocardiogram. Continuing the injection during the course of this experiment, I obtained interesting records. Analyzing these, it was evident that a striking change was produced in the form of the electrocardiogram by the injection of a large

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amount of fluid into the right heart. There is noticeable a distinct suggestion or indication of right predominance.

The particular change noted is a diminution in the voltage in all three leads. Equally important and significant is the alteration in the form of the S-T phase progressively assuming a negative direction with final inversion of the *T* wave. The clinical interpretation is important: This suggests that inversion of the *T* wave in lead III is a significant sign of cardiac stress or dilatation.

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A New Method of Eliminating the Basic or Diastolic Blood Pressure

By G. Arbour Stephens, M.D.

A knowledge of the basic blood pressure is essential for every physician, and in order to secure that knowledge it is essential for us to possess a simple method of estimating the basic blood pressure.

The present method in vogue is what is called the "auscultatory," but every truthful doctor will admit that he finds it very difficult to make anything like an accurate estimation by this method.

My method requires the use of two sphygmomanometers, one above the other on the same arm, and depends on the fact that by inflating the armlet of the other one A the systolic blood pressure is prevented from passing to the artery at D, leaving the blood at D under the basic or diastolic blood pressure.

Sphygmomanometer A measures the pressure in C, and similarly sphygmomanometer B measures the pressure D.

The procedure is simple and is as follows: inflate armlet A until the radial pulse be stopped, when the reading on dial A will give an estimation of the pressure in C, i.e., the systolic blood pressure.

Immediately inflate armlet B until the needle on A is forced a little higher than the reading of the systolic blood pressure and when this occurs the reading on dial B gives the estimation of the basic blood pressure.

If the basic blood pressure is raised, there is an undue compression on openings of the vasa vasorum with the result that less blood enters and the blood supply of the vessel walls is seriously affected.

To be able to take a series of readings in a simple way means that we shall have available a large number of accurate readings in all kinds of diseases and already my experience seems to suggest that in chorea and epilepsy the basic blood pressure is above the average with the result the vessel walls are all supplied with blood and consequently are very liable to spasm or cramp.

A severe spasm gives rise to a fit while a choreic attack is due to a clonic contraction of the muscular fibres of the arterial walls.

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Tomb of Galileo

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AUSTIN FLINT, M.D., LL.D.

One of the Most Eminent of American Physicians, Who in 1845 Established the Buffalo Medical Journal, Which Seventy-Four Years Later (1918), Was Combined with the Medical Review of Reviews.

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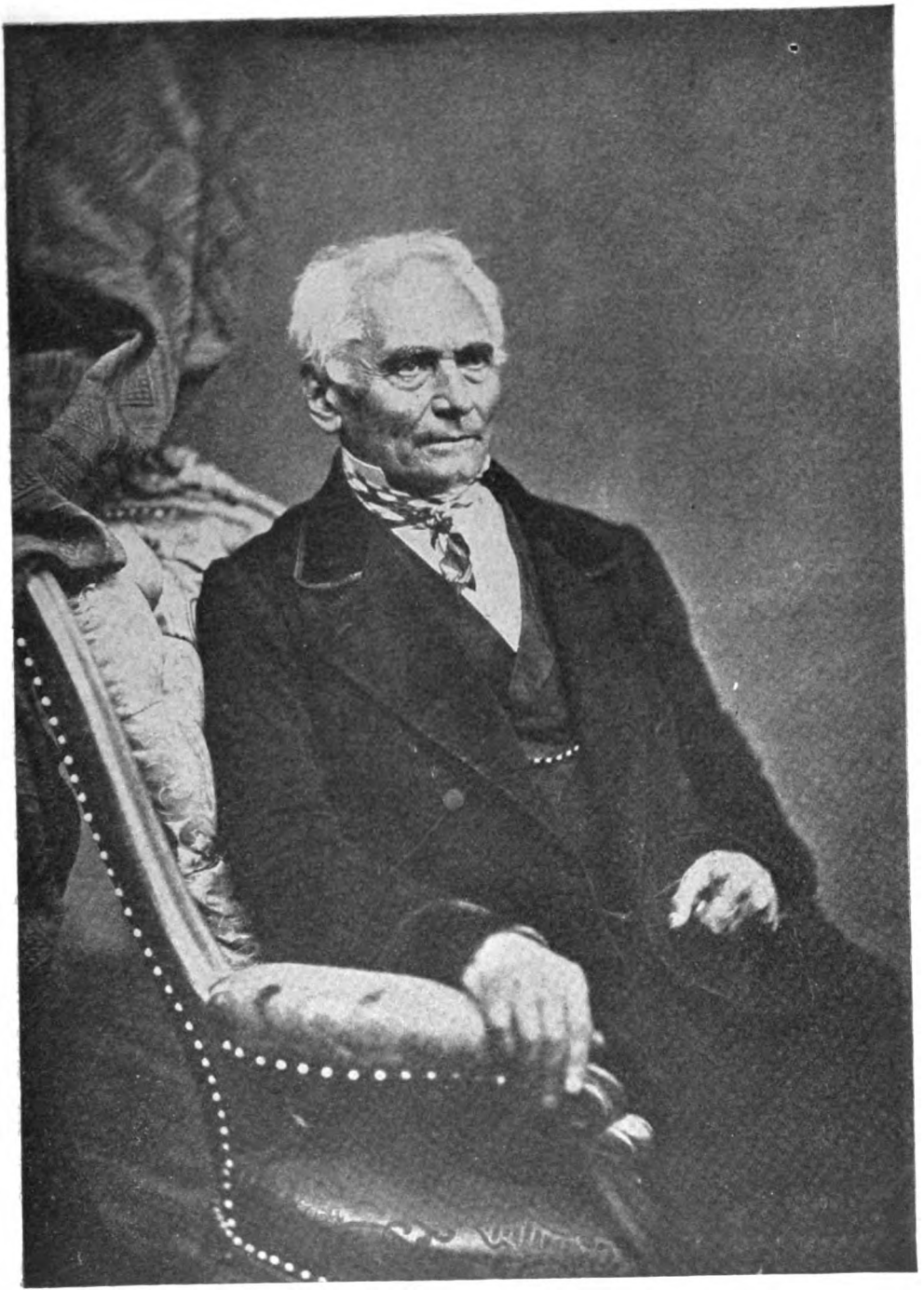

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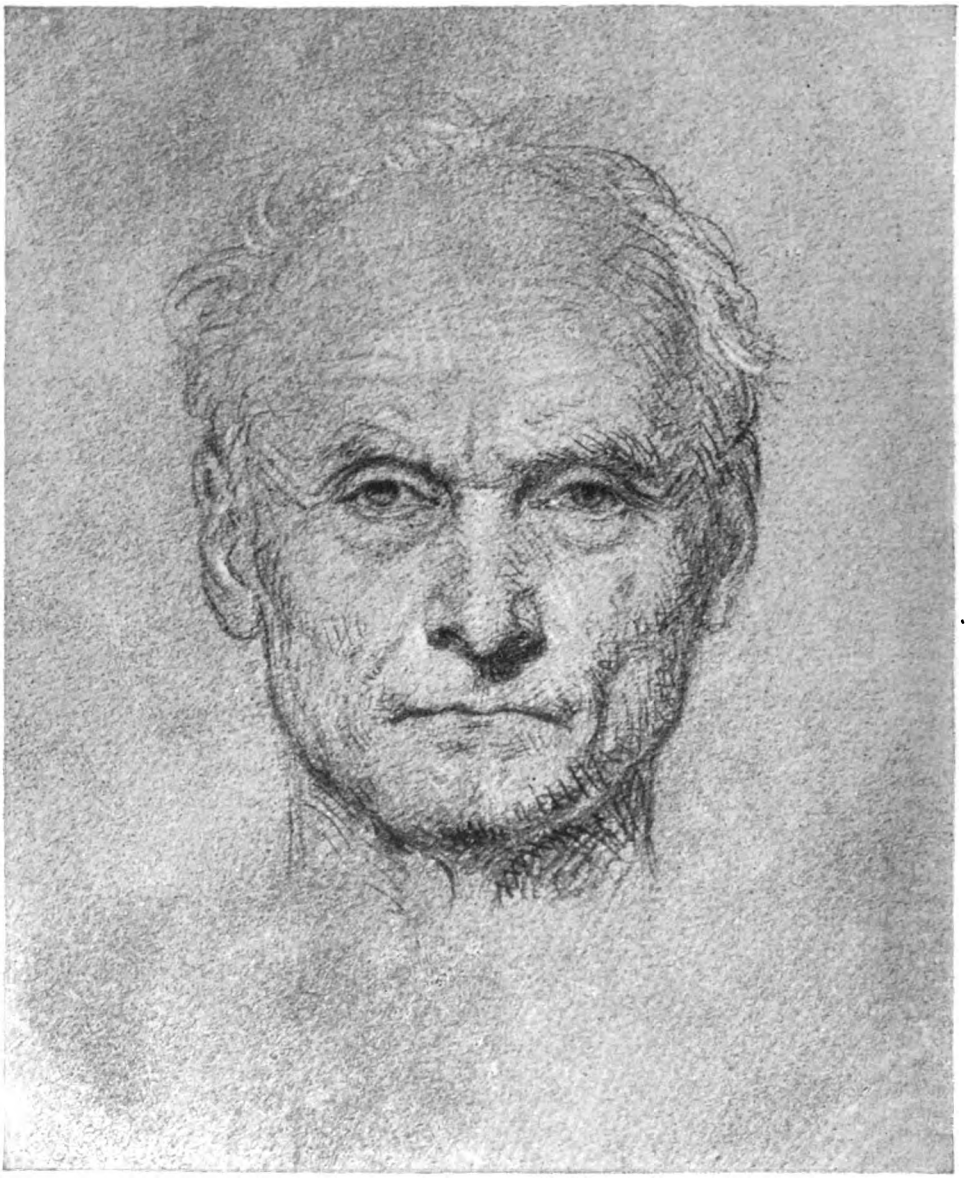

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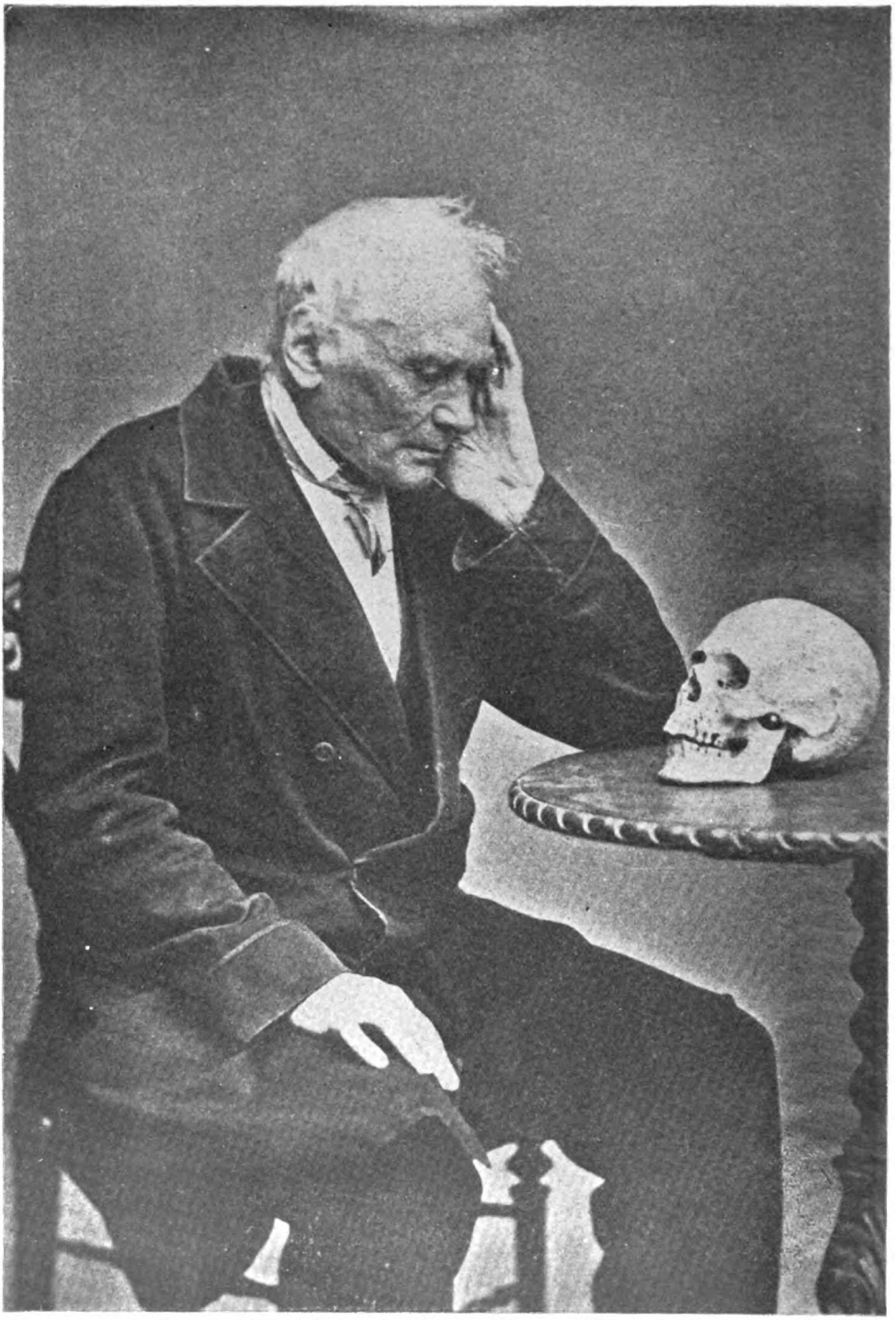

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Hygiene of the Tonsil

By GEORGE B. MCAULIFFE, A.B., M.D., F.A.C.S.

It seems strange that out of the vast number of tonsillectomies done, a more precise knowledge of the bad tonsil is not gained. No examination of the exsected tonsil is made to discover its toxic potency but it is discarded and constitutional results are expected. The statistics vary so much that one has no sure knowledge that the exsection of a tonsil will produce the amelioration of the constitutional poison. It seems that the balance of opinion in favor of the exsection carries conviction that all tonsils should be adjudged guilty.

Fortunately, exsection of a tonsil does not produce any grave untoward effect although a rigid inquiry among tonsillectomized patients might bring out many facts to show that tonsilectomy may produce a compensatory enlargement of other lymphoid tissue in the very young where apparently the tonsil acts as a supply of lymph cells. It is asserted by some that it carries on the function of the atrophied thymus. It is the opinion, generally, that whatever part the tonsil plays in lymphatism it is useless after 12 years of age. Many patients complain of more sore throats after tonsillectomy than they did before. They often complain of undue dryness, but these complaints are minimized in their minds by the feeling that they are rid of a possible infection. If one weighs all the authorities he finds himself uncertain as to whether exsection will prevent rheumatic attacks or subsequent attacks of carditis.

It is perhaps heresy, in the present state of medical opinion,

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to defend the tonsil, but except on macroscopic observation we have no data which determines that the tonsil is diseased. The mere presence of streptococci on or in the tonsil does not preclude the possibility that they are just as rampant elsewhere in the pharynx. The presence of softened tonsillar plugs which is often called pus does not indicate there is absorption going on from the tonsil.

If we think that the crypts contain septic material and the tonsil tissue itself is not septic why should not the tonsil be submitted to a cleansing process such as Nature tries to do ordinarily with the movements of the tonsil muscle and of the pillars. Patients will often say that plugs are cast out into their mouth during movements of the throat.

In all probability, while the walls of the crypts are intact, infection can not take place. Where there is a break due to the anfractuosities of the crypts or adhesions, the interior may soften down, destroy the protecting wall and allow seepage into the circulation. I have exsected such tonsils where the deeper portions were of a grumous consistency and extremely friable. We have no definite diagnostic data to enable us to recognize this condition. No doubt there are septic tonsils. In the firm variety so often exsected no such pathological condition may be seen. We have opened tonsillar pockets of apparent pus where no constitutional symptoms were present. Why not? They must have been walled off. They appear as if they had come from some stopped up crypt and had gradually broken through to form an abscess near the surface. Often they are multiple and small and become calcified. Why tonsils with these abscesses do not give rise to more systemic disturbance is strange, contrasted with throats that have been freed of their tonsils and yet developed sore throat, rheumatism and carditis. It would mean that absorption of streptococci occurs from other lymphoid follicles in the nasopharynx.

I feel sure that in spite of the fact that no afferent lymphatic have been found in the tonsil that systemic infection is often held in them, the tonsil swelling like a lymphatic gland in its effort to dam off the poison. This is seen so often in infections of the anterior part of the nose-infections which

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often have as a sequel, a tonsillitis. I hope sometime that the dubiety will be cleared up which exists now in our ignorance of an exact recognition of a septiferous tonsil. They are all classed as bad in a constitutional crisis and are taken out as a safety measure without somatic censure. In our present state of ignorance of diagnostic data concerning tonsils as a septic vector we might try to exercise a little hygienic care of tonsil just as we do with out teeth to prevent caries and not wait supinely until the tonsil fights it out with infection. We use hygienic measures in ordinary catarrhal conditions but the tonsil is not touched until some constitutional malady causes us to pick it out as a focal infection. Before the body disturbance occurs, no doubt the tonsil needed attention.

We often find that a beginning tonsillitis is aborted by suction of the crypts with a Waring suction tube and applications of mercurochrome or nitrate of silver to relieve the surface infection. The streptococcus viridans is generally near the surface of the tonsil and not in its interior.

For those who show a tendency to tonsillar infection the old-fashioned gargle which reaches nearly to the posterior fold might still be of hygienic value. Apart from the benefit of washing off the surface infection the effort of gargling will bring into play the expulsive action of the muscles in clearing the tonsillar crypts. The application of wet bicarbonate of soda to the tonsils with the finger tip or the use of the ordinary dental solutions used in rinsing the mouth will surely keep the tonsillar surfaces free from infection and in good condition. An occasional light use of the suction tube will free the crypts and an application of nitrate of silver will aid. Unfortunately few desire to follow out this plan and readily fall in the way of tonsillectomy on general principles.

Of course if quinsy occurs, it shows the need of tonsillectomy because in these cases there must be retention beyond Nature's freeing process.

However, a little thought on this matter will bring out the fact that the tonsil is neglected in ordinary mouth hygiene and that if an effort is made to include it in our daily hygiene innumerable tonsillectomies may be avoided.

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Eczema

Its Nature, Etiology, Origin, Development and Course

By EDWARD PISKO, M.D.

It is difficult, and I believe we will never succeed in giving a clear definition, what an eczema really is. The best definition ever given is: A superficial, noncontagious, polymorphous, pruriginous, usually chronic *dermatitis*, which has the tendency to spread and to relapse and which does not leave any scars.

What does all this mean to the general practitioner? Firstly, that we are dealing with an itching dermatosis, manifesting itself upon the skin as lesions: papules, pustules, scales, crusts, bullae, in other words any change of or on the skin accompanying inflammation in the upper strata, thus removing the epidermis in form of any of these efflorescences, irrespective of their origin, be it mechanical, caloric, chemical (as for instance dyes) or due to the intake of food and drugs.

A better idea is obtained by following the various stages: at first the redness of the hot surface—INFLAMMATION—and then the papule above the papillae, which starts to itch; the patient automatically scratches and in this way the epidermis is removed deep into the corrium, the minutest capillaries exudate blood and serum.

This is the course of an *ideal* eczema, but this happens very rarely, and it is the hardest task to cope with eczema.

Taking into consideration all the causative factors for eczema, you will readily understand, why eczema is such a common every day occurrence with our skin, because most of us are exposed to these factors daily, if not hourly. It is of interest that all these causative factors or agents furnish the same inflammatory process on the skin, whether overexposed to the rays of the sun or to heat, whether we ate something, that did not agree with us—idiosyncrasy—or whether we have met with an accident, be it an ordinary bruise only, which simply denudes the area affected of its epithelium, the end-result is invariably the same: RUBOR, CALOR, DOLOR, according

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to the amount of injury and susceptibility more or less pronounced as far as the redness is concerned—ERYTHEMA—and in the same way the amount of heat and naturally in proportion, the pain too.

As to the etiology of eczema: most anything can be made responsible, be it external irritation, external infection, local predisposition of the tissues, URTICARIA, disturbances of the vegetative nervous system—VAGOTONIA—in all of these cases we get a dermatitis just as we get it in disturbed food—assimilation. I agree with everybody to that extent, but to call it an eczema, I believe we do it for the sake of convenience and this has gone on for more than a century, and I think it is about time to do away with it, because it is really not a clinical entity.

In a number of cases the erythema in consequence of a trauma or of any other origin remains as such for a number of hours, especially if the skin is less sensitive; vice versa, in a more susceptible skin even with a lesser degree injury, we get a reddened, swollen and hot area, studded with papules and extreme pain and itching.

Itching is the middle name of eczema. The itching brings the scratching, and the scratching furnishes all the products of secondary infection. I shall not go into details as to the pathology of itching; may it suffice to state that it is a subjective symptom, dependent more upon the individual than upon the causative factor; for example, the inmate of a lodging house is covered almost all over his body with eczema post scabiem, and we hardly find any scratch-marks. Another person camps out on a lawn studded with poison ivy or golden rod; he may sleep the whole night, even stay the whole summer and will not get a dermatitis, because of a certain immunity: his skin is subsensitive and not susceptible, while other persons from the slightest contact will get the severest dermatitis.

I must state right at this point, that it only happens too often that we deal with an eczema which in its inception amounts to almost nothing and it could have gone into full restitution ad integrum, had it not been interfered with. I have often been confronted with this problem, especially in

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cases of eczema medicamentosum (drug-eruptions) and in occupational dermatosis, leading to, what is termed trade-eczema, as in painters, furriers, fruit-venders, etc. These patients, when seen by the family physician are given an ointment and invariably a powerful one, highly aseptic at that, and this is the worst thing that could happen to the patient, much worse than his pathologic condition and I, for one, cannot warn you any too earnestly and emphatically never to use in any *acute* condition of the skin an ointment; it is absolutely unwise, a lot of suffering may be spared to the patient by cleansing the surface and prescribing a soothing lotion. By that is meant a mild astringent to which I add some ichthyol, tar, carbo detergens, etc., while the ointments are reserved for the stage, when the eczema is stationary, not oozing any more, no more swelling and no more redness and no more pain, for the ultimate healing.

While on the subject of therapy, although not within the scope of this brief paper on the nature and course of eczema, I want to state again, that in the so-called acute or subacute stage of eczema, my only choice of treatment is the astringent lotion; in chronic cases in addition to the astringent solutions I use the quartz light, and in eczema of long standing where we have a thickened area in the deeper strata of the corrium with entire loss of substance and epidermis, x-ray treatment followed by strong pastes—(2%-5% salicylic acid, 10%-15% resorcin in Lassars' paste, and towards the end, scarlet red ointment (10%) to bring about a rapid formation of new epidermis. By the way, water is sometimes very injurious, especially in cases of secondary infection, pus and oozing of purulent serum, you then will have to substitute *oil* for water.

Another very important point in my personal treatment of acute dermatitis is the use of ice cold applications—be it oil or water—because the high degree of cold shuts off the blood-supply from the capillaries, thus rendering a localized anemia and it furthermore acts as an anesthetic, as far as pains are concerned.

For a number of years, diet has played a role in eczema. In fact, a number of authors believe diet to be the causative fac-

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tor of a certain percentage of eczema, especially the infantile eczema on the face and scalp. Anaphylactic food tests were made all over the world especially by the endermic method, i.e., injecting into the layers of the epidermis a stated quantity of the different proteins in solution or suspension waiting from 24 to 48 hours for the reaction. A positive reaction means a papule at the site of the injection followed by a marked erythema—by the way, normal children give no reaction. It is self-understood that we cease for the time being with all local applications, in order to see what benefit diet exerts on the course of the eruption. Personally, I have never obtained any therapeutic results, even with the diet correct according to the finding. I shall explain this in a given case, after stopping say, for instance, oatmeal; after its elimination, the eczema goes on just as heretofore; the correction of diet, according to the findings, fails to influence the eruption as such, while ameliorating the conditions in the gastro-intestinal tract and the general health of the patient. Dwelling upon that supposition, children were fed in various clinics with pancreas for the faulty assimilation of fat in the milk, but the eczema on face and scalp remained. It certainly would be great, if the entire health problem in children could be solved with their anaphylactic disturbances and it cannot be denied, that anaphylaxis does play a tremendous part in human disease particularly as applied to the cause of illness in infants and children even in eczema.

There is only *one* case reported favorably by Rueda (1924) finding that infantile eczema seems to co-exist with faulty assimilation of fat; he gave pancreas substance to such infants in an attempt to reinforce the pancreas in its task of coping with the fat in the milk. Rueda reports 75 cases in which infantile eczema was effectually treated by feeding pancreas tissue in daily doses of from 1-5 gram, according to the age.

Nevertheless, pediatrists still insist that eczema is purely a question of feeding. Are all of the so-called infantile eczemas dependent on food-poisoning only? And how about breast-fed babies? The percentage is about the same as far as eczema is concerned. The relationship of associated constitutional

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pathologic conditions and the presence of eczema in the same patient is accepted by all the authors on the subject and we are led to believe that a group of medical complications rather, than a skin manifestation, is being dealt with in eczema; disease of the organs of elimination and metabolism is present at least in 70%. I subscribe to almost 90% in my own cases.

It is therefore of the greatest importance, when dealing with a rebellious dermatitis to analyze and to study the *patient* and to have the co-operation and the expert opinion of the best men available, because all diseases of the skin, except the parasitic group, *and this is my firm belief,* are not diseases of the skin per se and they are considered by others and by myself only to be processes manifesting themselves, and they are nothing else but the visible expression of what is going on within, irrespective of the name you want to give it, such as anaphylaxis, acidosis, allergy, faulty metabolism, idiosyncrasy and what-not. I always examine the patient physically and I make a tentative diagnosis *clinically,* independent of x-rays, Wassermann, differential blood-count and urinalysis, etc. Of course I do them all in time and get the best colleagues to help me and to help the patient—after all, this is our highest ideal.

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Non-Specific Therapy

*Its Value in Adnexal Diseases of the Male and Female**

By WINFIELD SCOTT PUGH, M.D.

It is our intention to-day to discuss with you the diagnosis and treatment of acute inflammatory disease of the generative organs, particularly those incident to gonococcal infections. As the male of the species is most commonly seen by the general practitioner, we will take him first.

The number of males infected by the versatile gonococcus is variously estimated as from 50 to 90 per cent. Our own experience teaches that about eighty out of every hundred is nearer correct. This is not intended as an indictment of the morals of man. It simply reveals to us that the majority are human, irrespective of their race, creed, vocation or social status. In our thirty years experience we have treated prince and pauper, the most impeccable gentry and denizens of the innermost recesses of the underworld. From the standpoint of sex, poignant though it may be to some, the descendants of Adam are essentially the same.

There is a common idea that I might further say seems rather firmly rooted in the minds of both physician and layman, to wit: that gonorrhea in the male is primarily limited to the anterior urethra. I expect to be criticized for this statement by urologists of the stand-pat school, but it is true, nevertheless.

When a patient enters the physician's office with a urethral infection, do not forget the fact it has been almost a week in incubation. What does this mean to me? I shall tell you, and craving your pardon for the rather trite expression, our patient is loaded. His urethral canal is infected from meatus to meatus and it would seem to require the services of no particularly erudite person to visualize this. No, I am not going to explain this fully as I have done so many times before. The talk would be long and time is fleeting.

Why, you say then do we not have more complications? Mon Dieu! as our French brethren say, truly we have enough.

*A clinical lecture from the Department of Urology, City Hospital, New York, April 2, 1930.

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Any involvement of the posterior urethra renders the adjacent organs, as the prostate and seminal vesicles, particularly liable to infection and they are involved in a large percentage of cases. To-day we are particularly interested in the seminal vesicles, or the seed bladder of the Germans, and the epididymis. I really think we should adopt the translation of that German word, as just like gall bladder it is most expressive.

In what percentage of gonococcal infections is the seminal vesicle involved? Among the older urologists there was considerable difference of opinion as to the incidence of this disease. Allen, Collan, Fuller, Feleki, Guyon, Neisser and Wossidlo believed it a common complication of gonorrhea. Fournier, Horwitz and Scudder regarded it as rare.

Among later reports, Mayer in 1905, reported 60 per cent. involvement of the vesicles in cases of posterior urethritis. Lewis and Bohm, in 1909, reported that in an examination of 1,000 cases of gonorrhea, 25 per cent. showed a seminal vesiculitis. In the last thirty years we have inspected a very large army of gonococcus infections in the male urethra. These examinations were largely made under the best possible circumstances and the control of the cases ideal. These patients, even though placed in bed and given the care of an acute febrile disease, developed evidence of a posterior involvement in the great majority of cases. Enlarged and somewhat painful seminal vesicles were noted in about 75 per cent. of these patients. In a few instances one vesicle was involved; the vast majority, however, showed a bilateral manifestation. Many of these vesicles were very large and did not subside under the treatment then in vogue. In 360 cases of persistent vesiculitis, a vasostomy was done, about 65 per cent. of which were flat failures. I had often wondered what the future held in store for these cases. Sufficient evidence has accumulated to convince me that the possibilities are grave indeed. This, however is another story.

The average physician and surgeon seem to know very little of the seminal vesicles. When the case is examined, a diagnosis of prostatitis or if the epididymis is enlarged inflammation of the latter organ may be diagnosed. Perhaps I am taking up a

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little more time than I should on this introductory, but the point I am trying to drive home is that an infection of the epididymis is always secondary to a seminal vesiculitis. Oh yes, we may have the latter without the former.

It is rather surprising in view of the high percentage of seminal vesicle infections that there is not more epididymitis. It is generally stated that about 30 per cent. of the gonorrheals present this complication. One student tells us this incidence can be reduced to ten per cent by the use of gentle methods. Would that this were true. When the infection extends beyond the vesicle it passes down along the spermatic cord in the direction of the testicle. No, we can state quite positively that the disease does not enter the testicle in spite of that platitudinous expression, "swollen testicle." The complication remains truly an epididymitis.

If you carry away nothing else with you to-day, implant the following fact firmly in your cortex cerebri, that in the presence of an epididymitis, it is folly to treat only the epididymis.

Treatment

There are a number of procedures that may be adopted in the treatment of these diseases. You are particularly interested in what should be done in the presence of an epididymitis and its associated vesiculitis in the home. The patient knows little or nothing about his samen blassen, but the swelling around the testicles is quite apparent to him and something must be done.

First get your patient off his feet and place him flat on his back in bed. Oh yes, he may complain, as gonorrheal patients are the greatest complainers as well as champion liars. Place an ice bag between his legs and have the scrotum on the ice bag not the reverse. Strange as it may seem this little point is of great import and commonly overlooked. Any weight, even an ice cap, increases the pain of a swollen epididymis.

Now phone your druggist and have him send you up at once some activin and give him at once ½ cc into the muscles of the gluteal region with about a 25 gauge sterile needle inserted at right angles to the skin surface. It is said that care must be used lest one puncture a blood vessel. While it is wise to avoid

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this possibility, I believe the dangers have been somewhat exaggerated. As to continued treatment, it is said to be regulated by the response of the patient. By this we mean how markedly he reacts. We are told by those of extensive experience and our own seems rather to confirm it, that a local reaction seldom occurs.

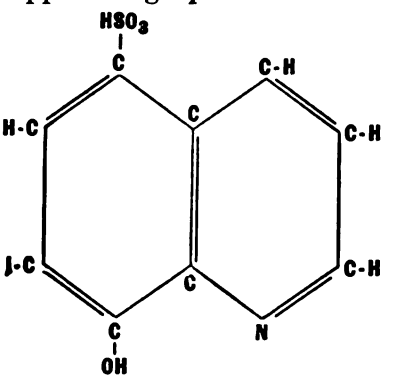
The focal reaction may be manifested by exacerbation of the swelling which quickly subsides. A strong general reaction with high temperature, severe chills and sweats is not desirable and can usually be avoided. The intervals between our doses is usually two or three days. After this the swelling subsides rapidly not only in the epididymis but the seminal vesicle as well.

The Non-Specific Protein

The substance which we have been using here in about 30 consecutive cases is known as Activin and is supplied us in packages of twelve ampoules of 1 cc each; the following will give you an idea of what the substance is chemically.

The Chinolin group has been of scientific interest ever since Christopher Gerhardt first produced it in 1842 by melting quinin with potassium cyanid. A. Laurent worked out the empiric and Kierner the graphic formula.

In 1879 Skraup succeeded in producing it synthetically and reported his work in the German Chemical Reports (B. 12, page 1416). Later, various combinations were evolved and iodio-oxyquinol in-sulphonic acid $C_6HI\ (OH)\ (SO_3H)$: (C_3H_3N) resulted with the appended graphic formula:



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This product was first marketed under the name Loretin. Being insoluble in water its application was greatly restricted. The addition of a small amount of sodium bicarbonate overcame this difficulty and rendered it soluble up to four per cent.

It was first used therapeutically as a substitute for iodoform and later suggested in the treatment of a variety of diseases. It is of proven value in amebic dysentery and extensively employed in this field.

Parenterally it was used in the so-called irritation therapy. The addition of casein increased its value in this work and it is this combination, now known as Activin, which was employed in the cases to follow.

Case Reports

Notes on the following five cases will give you a fairly good idea as to what has been accomplished in our series.

J. G., age 37, native of Denmark. Had an acute gonorrhea followed in one week after its onset, a marked epididymitis of the left side. Pain was most severe and he was unable to acquire ease in any position. He was seen soon after the attack began and examination showed the usual genital involvement. The routine local treatment was given and ½ cc of Activin given intra-muscularly into right gluteal region. I have just been asked if the injection should be given on the same side as the involved epididymis. No, that does not enter into the question at all. The injections as a matter of fact, may be given in any part of the body. For some reason the inter-scapular region is popular; and the results are about the same.

Now to get back to our case. This man received his injection at about 5 p.m. and slept well during the night. His only evidence of reaction was that he woke up at about 6 a.m. feeling quite chilly. I believe here most of the reaction had taken place during his sleep. On the following day he felt great relief and was allowed to sit up in his chair. In a few days later a second injection was given and on the fourth day he was back at work. It was reported that in a week there was practically no sign of swelling.

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Case II—A. H., Chinaman, age about 23. Following an acute attack of gonorrhea three weeks previous he developed a bilateral epididymitis. It is commonly said that the Chinaman wears a mask so that one can never tell what emotions lie behind his countenance. We can assure you that old saw did not apply in this instance. Perhaps it was the climate. Who knows. Well at any rate when we saw him he was screaming with pain. So much so that it was necessary to give him a hypodermic of morphia, grs. ¼ to relieve him. Just let us interrupt our narrative a few moments to say that when your patient is in such dreadful pain, don't fail to quiet him. Of course you and I, not having had an epididymitis cannot understand the violence of the associated pain. However, from what hundreds have told me, it must be intense. So if you have a spark of human feeling you will give them morphia, if necessary. Our Chinese friend was also given 1 cc of Activin in the buttocks as an initial dose. In about four hours later there was considerable reaction, with chills, fever and sweating lasting in all about one and a half hours. A slight irritation was also noted at the site of the injection. His temperature dropped from 102.5° F. to 99.8° F. on the following day and remained down. This man was given two further injections of 1 cc Activin each two days apart and at the end of a week resumed his occupation.

Case III—You will notice so far we have had two foreigners on our list of patients. Many of our good law-abiding friends feel that these diseases are of European origin. No, no my good old Anglo-Saxon, even though we do bar moral turpitude, no bars are strong enough to keep out the aggressive little gonococcus. So the next gentleman is one of our fellow countrymen.

J. S., white, age 27. Native of U. S. According to his story this man has been under treatment for a gonorrhea about four weeks. One evening he noticed a pain or soreness in the left groin. On arising the following morning his testicles, as he said, pained him dreadfully and we were sent for in a hurry. Patient was sitting in a Morris chair with a cushion between his legs supporting his scrotum. Said it was the only way he could get relief. Treatment consisted of an injection of 1 cc

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Activin into muscles of right buttock. He felt relieved in about five hours and declined to take another injection. In about one week reported that he was well. I sent for the patient and found the epididymis practically normal.

This patient was not disturbed at all by the injection and it is difficult to understand why he declined a second dose as he insisted the first had done the work. Strange as it may seem all venereals seem to be anxious to gamble with life.

We have selected the above from our group of cases as exemplifying the value of this non-specific therapy.

Salpingitis

Now for a look at the ladies. The infections of the Fallopian tubes are so strikingly similar to involvement of the seminal vesicle and epididymis, that it is natural for us to expect similar results and are not disappointed. As you know a salpingitis may follow any acute infection of the genital tract, but is particularly prone to occur in the presence of the gonococcus.

As a general thing the disease manifests itself rather violently. The unfortunate woman is often seized with terrific abdominal pain, which is sometimes limited to the sub-navel area, but by no means always so. As a matter of fact most of the cases that have come within the purview of my experience have suggested the onset of an appendicitis or an acute general peritonitis. The temperature and pulse are usually high; nausea and vomiting are frequently present and the laboratory brings us the picture of a marked leukocytosis. Our patient often presents a typical appearance of sepsis and she is indeed a very sick woman. A study of the pathology reveals an extensive inflammation of the entire genitalia as a rule. The numerous membranes are not only involved but there is an extension well into the mural portions of the structures involved.

Treatment

Having delved into the depths of the male gender in this little talk, we shall try to be as concise as possible with the ladies. It is of the utmost importance in this instance that we

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Treatment

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make a correct diagnosis, particularly between salpingitis and appendicitis as the proper treatments are so widely divergent. Examine your patient externally and internally and with a reasonably good history, you will seldom err. In an acute appendix most surgeons are quite radical, feeling that the acute appendix is better behaved in a bottle of formalin. I rather suspect that many of the appendectomy mortalities today are incident to delay.

When we come to an acute salpingitis, surgery has no place whatever. To plunge headlong into these cases spells disaster to the patient and no little embarrassment to the surgeon.

There is but one form of treatment that can be countenanced here and that is rest in bed, cold locally, the use of sedatives, if necessary, and the judicious administration of protein therapy. In a considerable number of cases we have used Activin as we will show you in the two cases following, and which we have selected as typical cases.

Case I—Mrs. J. S., age 18, white. Native of United States.

Mother of two children. This patient suspected that she was about two months pregnant and for economic reasons, decided to get rid of the ovum. A catheter was used apparently in an effective manner. However, four days later she was seized with severe, abdominal pain, rigidity being noted over the entire area. Temperature was 104° F., pulse 120; no vomiting but some nausea. Her physician sent her into the hospital at once to have an appendectomy. A careful examination showed a marked pelvic lesion with a suspicious mass over the left kidney.

She was at once given Activin 1 cc intra-muscular along with local applications and in forty-eight hours it was repeated. On the third day she had quieted down considerably. On the fourth day while her temperature was 100° F., she stated that she felt quite well and the abdomen was fairly soft. One week later a well marked abscess had localized itself and was opened through the posterior cul de sac and a good recovery made.

Case II—Miss M. J., white, age 30. Native of the United States.

Previous history: has no bearing on the case. About one month ago there came to reside within her a most annoying

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tenant in the shape of the gonococcus of Neisser. Both the urinary and the generative tract were involved. Thanks to her careful physician the urethra quickly cleared, but the birth canal did not do so well.

Presently following the absence of her regular physician, rather vigorous treatment was administered to the cervix. On the following day she had a chill, terrific abdominal pain and board-like rigidity of the belly-wall. Nausea and vomiting were present with the usual febrile movement. We saw her in consultation and confirmed the diagnosis of her physician—namely that we were dealing with an acute salpinx. She was at once given 1 cc of Activin intra-muscularly in addition to the usual local treatment. In forty-eight hours it was repeated and a third was given four days later. Eventual recovery.

Summary

From the foregoing the following facts are evident:

1. Epididymitis is a symptom of infection in the male genitals and is always preceded by seminal vesiculitis.

2. It is a mistake to treat only the epididymis as we are missing most of the disease.

3. The disease discussed should be treated by local medication and the intra-muscular use of non-specific protein therapy such as Activin.

4. I admit being somewhat averse to all intravenous therapy, after many years of experience with it.

5. In salpingitis a similar condition to epididymitis and vesiculitis in the male exists.

6. For your own future peace of mind and standing in the community do not mistake salpingitis for appendicitis.

7. Treat the diseased tube, by rest, local applications and the intra-muscular use of non-specific protein therapy.

8. When the acute stage is over treat the indications as they arise.

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The Clinical Application of the High Frequency Currents*

By Frank Hammond Krusen, M.D.

About 600 B.C., Thales, of Miletus, "Chief of the Seven Sages of Greece, rubbed a piece of fossil resin and watched the amber attracting bits of cloth and feathers."[1] His was the first recorded observation on the action of frictional electricity, although he was unable to explain this phenomenon. In the time of Emperor Tiberius, Anthero, a freedman, was reported as having been cured of gout after having stepped on a torpedo, an electrified fish. Dioscorides recommended shocks from the torpedo in the treatment of intractable headaches, in which practice he was followed by Galen and Paul of Aegina (625 A.D.). It was not until 1600, when William Gilbert wrote "De Magnete," that physicians became interested in the use of electricity in the treatment of disease.

The use of the high frequency currents in the treatment of disease is of comparatively recent origin. In 1891, Nikola Tesla first suggested their use in medicine. Jacques-Arsene d'Arsonval, in 1892, introduced these currents and showed that muscular contractions cease when the current frequency exceeds 10,000 oscillations per second. In 1893, Professor Oudin, in Paris, demonstrated the use of sparks from a monoterminal application of the high frequency current in the destruction of superficial cancer. This method, later practiced by De Keating-Hart, was called fulguration.

Medical Use—"Diathermy." Although high-frequency currents had been described, and their clinical application suggested, during the latter part of the nineteenth century, it was not until 1907, when Nagelschmidt, of Berlin, described an apparatus for the application of these currents for medical purposes, that the medical profession became interested in them. Nagelschmidt called this method of treatment "Diathermy" (through and through heating), a very apt term for the medical use of high frequency currents, which gained universal adoption.

* From the Department of Physical Therapy of the Temple University Hospital. Read before the North East Branch of the Philadelphia County Medical Society on April 4th, 1930.

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Diathermy was first used in this country by Frederick De Kraft, in the office of William Benham Snow, in New York City, in 1906. The first use of diathermy in hospital practice was in 1909, when H. Lewis Jones introduced it at St. Bartholomew's Hospital in London, England. The medical use of high frequency currents in this country has been advanced by the work of De Kraft, Granger, Stewart, Sampson, Grover, Snow and Titus. Stewart is especially known for his work with diathermy in pneumonia.

Surgical Use—"Endothermy." Following Oudin's description of "fulguration," in 1893—E. Doyen, in 1907, presented before the French Surgical Congress a method for destroying accessible cancer, by means of a biterminal application of the high frequency current. This process he termed "Electrocoagulation."

A few years later, in 1910, William L. Clark, of Philadelphia, devised a method for the destruction of superficial growths by means of the monoterminal application of the high frequency current, with a fine needle inserted into the tissues. Since he was able to destroy tissue by dehydration, he, therefore, called his procedure "Electrodessication."

In 1921, Cumberbatch, of England, described the use of a blade-like active cutting electrode with the d'Arsonval high frequency coil, which he named "surgical diathermy."

It was in April, 1924, that George A. Wyeth,[2] of New York City, developed an undamped high frequency current, which he utilized for cutting purposes. He designated this apparatus "The Endotherm Knife." Wyeth, desiring to avoid confusion between surgical and medical diathermy, has suggested the term "endothermy" for all the surgical applications of the high frequency current; hence the appellation, "Endotherm Knife." In place of "electrodessication" or "fulguration," he suggests "monopolar endothermy"; and in place of "electrocoagulation," he proposes "bipolar endothermy." Since radio tubes are utilized in the production of the undamped high frequency current, which is used for cutting purposes, W. L. Clark has suggested the name "radio knife." Since, however, the cutting current can be produced also by means of a finely adjusted

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spark gap, this term would not always apply. Howard Kelly, of Baltimore, an enthusiastic user of the cutting current, has suggested the name "acusector" (acu, with a needle; seco, I cut). This term, though excellent, would apply only to the cutting properties of the high frequency current, and would, therefore, not be applicable in conditions where the tissues were coagulated or dessicated. Bovie also has devised an apparatus which provides a cutting current, and which is commonly known as the "Bovie knife." This name presents the same difficulties as does the term "acusector." Probably the best method would be to use the word "diathermy" for the medical applications of the high frequency current, and "endothermy" for the surgical uses of this current.

Definition. Granger[3] defines the high frequency current as "An alternating current of 10,000 to 3,000,000 alternations per second, with voltage and amperage very high, or lower according to the construction of the machine, with no polar, and no electrolytic or ionic effects."

The apparatus for producing the high frequency current consists of—

1. A source of electric current (usually the street main, which is practically always an 110 volt, 60 cycle current).
2. An off and on switch.
3. A choke coil or current intensity regulator.
4. A step-up transformer, which increases the current voltage.
5. Spark gaps, which regulate the flow of current through the condensers.
6. The condensers, which increase the frequency of the current from 60 cycles, or 120 alternations per second, to from 500,000 to 3,000,000 per second.
7. A secondary coil (usually called the d'Arsonval Solenoid) which delivers a high voltage, high frequency current to the patient.
8. A Tesla or Oudin inductor, which, because it has a a greater number of turns than the d'Arsonval Solenoid, gives a still higher voltage.

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The current from Oudin or Tesla coil is of such high voltage that if one side is grounded, the current may still be applied to the patient from the other terminal. This is known as a monoterminal application.

If the d'Arsonval coil is used, the voltage is lower, and both terminals are applied to the patient. This may be spoken of as the biterminal application.

Medical Application. There are two forms of medical application of the high frequency current that cannot strictly be called diathermy. One of these is the monoterminal application of the current by means of a vacuum or non-vacuum electrode. When such an electrode is used, a shower of fine, slightly warm, violet-colored sparks is delivered to the body surface. Very small, cheap, high frequency machines have been manufactured and grossly commercialized. These machines deliver this type of current, under the name *"violet ray machines."* This name is given because of the violet color of the sparks. These machines should not be confused with the *ultra-violet lamps,* which are mercury vapor or carbon arcs, and which elaborate really valuable medicinal actinic rays. The use of the small, so-called "violet ray machine" is rather to be condemned, since, even with a powerful high frequency machine, the only effect is slight surface counterirritation. The effect is about the same as that which could be produced by a mobile mustard plaster.

The other method of medical application of the high frequency currents, which cannot accurately be called "diathermy," is known as "autocondensation." With this method, the patient is placed on an insulated pad or chair, with a large metal plate attached to its under surface. The high voltage current usually is used. The patient is connected to one terminal by means of a handle. The metal plate is connected to the other terminal. The current is then turned on and gradually increased until from 500 to 1200 m.a. are being given. The treatment usually lasts from 8 to 15 minutes. In this treatment, the arrangement is similar to that of the Leydin jar, the metal plate being comparable to one metal coating of the jar; and the patient with the handle, to the other coating of the

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jar; the pad or chair is comparable to the glass portion of the jar (or dielectric). In this treatment, therefore, the patient is alternately charged and discharged at a very rapid rate; hence, the term "autocondensation" is quite descriptive. This treatment causes a dilatation of the peripheral capillaries and a reduction in blood pressure. It causes also an increase in the output of urinary solids. It has likewise a pronounced sedative effect. Grover,[4] of Colorado Springs, reports excellent results with autocondensation in the treatment of hypertension and hyperpiesis. While the effects on the blood pressure are transient, they are apparently not so transient as are the effects of the nitrites. A series of treatments will often lower the systolic pressure 30 or 40 points, and the pressure may be maintained at this point for a long period of time. This treatment is especially valuable in relieving the strain on the decompensated heart in cardionephritics with hypertension.

True medical diathermy is applied from both terminals of the d'Arsonval solenoid—a biterminal application. The electrodes used are usually made of 22 gauge sheet tin, cut in various sizes and shapes to conform to the part to be treated. Insulated wires are run from the terminals of the machine and they are clipped to the electrodes. The metal electrodes are usually moistened before application to the body surface, to permit better contact and better skin penetration. They may be held in place by means of semielastic bandages, sand bags, or rubber compression bladders. The electrodes are generally applied as plates, on each side of the part to be treated. When the current is turned on, it will flow between the two plates. Because of its rapid oscillations, there will be no muscular response or shock; the only sensation will be that of heat. While this heat will be greatest just beneath the metal electrodes there will, nevertheless, be an appreciable amount of heat deep within the tissues, between the electrodes. It was formerly taught that the lines of the current crossed, and that, therefore, the most intense heat was at a midpoint between the metal plates. This theory, of course, is not tenable. The current spreads out in its passage through the tissues, and the least heat will be present midway between the plates. If a

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large plate is placed on one side of the part to be treated, and a small plate on the other side, the heat will be most intense on the side nearest the small electrode, as the lines converge towards it. Thus, heat can be fairly accurately localized deep within the tissues of nearly any portion of the body.

Electrodes. Electrodes may be made not only in plate form, but also in the shape of cuffs for application to the extremities. If two cuffs are applied to an extremity, there will be a sleeve of heat formed between them; and there will be very little penetration to the deeper structures. This *double cuff method* is, therefore, little used. It is indicated only when it is desired to heat the superficial structures. The *double plate method* of application is usually the method of choice. Occasionally, a combination of the two is desirable, thus, a sprained ankle can often be satisfactorily treated with a foot plate and leg cuff. Metal mesh electrodes are sometimes used; but if a link in the mesh becomes broken, the patient may receive a burn at the point where the link protrudes. Tin foil is occasionally molded to an irregular part to serve as an electrode. There are many *special* forms of metal electrodes made for application to various parts and cavities of the body. Among these may be mentioned rectal, vaginal, cervical, urethral, aural and scrotal electrodes. All electrodes should be smooth and they should make even contact with the part to be treated. The corners should be rounded. The electrodes are usually moistened before application—soap suds or lubricating jelly being applied to the contact surface. This moistening makes for better contact and more rapid skin penetration. Almost entirely throughout England, and at some of the clinics in this country, a pad moistened in salt solution is interposed between the electrode and the skin. This is, however, a rather costly and time-wasting refinement, which is not essential to good skin penetration.

Dosage. The high frequency machines used in this country are not standardized at the present time; hence, the current output will vary with different machines. We usually calculate the dose, however, as from 50 to 100 miliamperes per square inch of the smaller electrode. The best guide is the patient's

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sensation—a part usually being heated just short of tolerance. One must be very careful not to produce a burn over an anesthetic area.

Physiological Action. One can, at the present time, claim little more for diathermy, in its medical application, than the production of resistance heat deep within the tissues. Binger and Christie,[5] of the Rockefeller Foundation, have, however, shown that in vascular tissues—such as the lung—which offer little resistance to the current, the temperature is raised only about 0.5 centigrade. Where the tissues are more resistant, the temperature has been shown to be considerably higher. Binger and Christie, however, neglect to show how much the blood supply is increased, although they point out that when the blood supply to a diathermized part of the lung is cut off, the temperature rises very rapidly. It is probable that there are additional effects, other than that of heat production, which are of more importance than the heat production, but which have not been definitely established. One very excellent electrologist has suggested that the bombardment of the rapidly oscillating current causes a temporary paresis of the vaso vasorum, thus producing a prolonged local hyperemia. Another physician suggests that there is, in some way, a conversion of electrical energy within the part, which produces prolonged heating. W. J. Turrell, of Oxford, states that "In the case of the high frequency currents, the most important recent advance appears to be the increasing recognition of the fact that these currents do not owe their therapeutic effects to their heating action *alone,* but also to the more fundamental action of the ionic oscillations and vibrations which precede and produce the heating effect."

Indications. Medical diathermy is indicated in any condition in which one is desirous of producing deep local heat and increased blood supply. It is the only known method whereby heat can be produced deep within the tissues. The work of Dr. Harry E. Stewart,[7] with diathermy in pneumonia, has been especially interesting. Diathermy has been of value also in the treatment of sprains, contusions, certain forms of arthritis, as well as in non-union of bones. It has, in addition,

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been used in many other conditions to numerous to mention here.

Contraindications. The two chief contraindications to the use of diathermy are (1) in conditions in which there is suppuration without adequate drainage and (2) in conditions in which there is danger of hemorrhage. In the former conditions the increased circulation may cause dissemination of the infection; and in the latter, the increased blood supply may precipitate a hemorrhage.

"Indirect Diathermy." There is another method of application of the high frequency current, generally spoken of as "indirect diathermy." With this application, the operator may use one of two methods. (1) He may connect the patient, who lies on a table, to the monoterminal high frequency current (Tesla or Oudin) by means of a large metal plate or by means of a handle. The operator then places one or more fingers on the part to be treated and he turns on the current, using a foot switch. The current then passes through the patient to the operator, and it is grounded through the operator. The current is most intense at the narrowest point, which is just at the tip of the operator's fingers. The fingers may then be moved over the skin surface, without breaking contact, producing heat which is always most intense at the point of contact. The intensity of the heat may be changed by making contact with more or less fingers, the less the number of fingers in contact, the greater the heat, and vice versa. The fingers should never be lifted from the part until the current is turned off, or a disagreeable spark may result. (2) The second method is to connect the patient, either by handle or large plate, to one terminal of the biterminal (d'Arsonval) current, and then to connect the operator to the other terminal, by means of a cuff. The operator then proceeds as before, placing the fingers on the part to be treated and then turning the foot switch.

Surgical Application.

Monoterminal Endothermy. With this method, a needle is attached to the single terminal of the Tesla or Oudin coil; the spark gap is opened slightly; and the needle is applied to the lesion to be destroyed. If the needle is held a short distance

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from the lesion and a shower of sparks is permitted to fall upon it, the method may be called *non-contact monoterminal endothermy,* or "fulguration," as described by Oudin and De Keating-Hart. If the needle is placed in contact with, or inserted just within, the lesion, the method may be called *contact monoterminal endothermy,* or "electrodessication," as described by Clark. These two methods are extremely valuable in the removal of superficial cancer, moles, warts, blemishes, naevi and the like. The current sterilizes its own field, seals capillaries and prevents bleeding; moreover, in malignancy, it prevents dissemination of cells. The resulting scars, which are usually slight, are very soft and pliable. The tissue destruction is due to the heat generated within the lesion, and, unlike the cautery, the needle itself remains cold. Hence, the term "cold spark" is sometimes used. Although the needle is cold, the tissue destruction is due to the formation of *true resistance heat,* and not to alkaline or acid caustic burns, as is the case when the chemical action of the negative and positive poles of the galvanic current are employed for tissue destruction.

Indirect monoterminal endothermy. There is still another method of applying monoterminal endothermy, in which the patient is connected to the single terminal of the Tesla or Oudin coil by means of a large plate or handle, and a grounded needle or sharply pointed wooden lead pencil held in the operator's hand is brought near to or in contact with a small surface lesion. The current is then localized at the tip of the needle or pencil, and the lesion is quickly destroyed. This method is applicable only to small surface lesions, but it is very effective with this type of blemish. It may be termed indirect monoterminal endothermy, or "indirect fulguration," as described by Granger.

Biterminal Endothermy. Throughout this discussion, the terms "monoterminal" and "biterminal" have been used, instead of "monopolar" and "bipolar." Although many electrologists use the latter designations, they are not strictly correct, since the high frequency current, unlike the constant or galvanic current, *possesses no polarity.* Biterminal endothermy, or "electrocoagulation," is utilized by connecting one terminal

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(not pole) of the d'Arsonval solenoid to a large "indifferent" metal electrode, which is placed in contact with some portion of the patient's body removed from the site of operation—often the buttocks, back or arm. The other terminal is then attached to a needle or button, which becomes the active electrode. Most of the modern electrocoagulation is performed with the needle alone, and the various-sized buttons are little used to-day. Greater amperage (current volume) is used with this method than with the monoterminal application; hence, the current is more intense, and it penetrates to a greater depth. The tissues are not merely dessicated; they are also coagulated. Again, as in the monoterminal application, the active electrode may be held a short distance from the part and the lesion showered with sparks, in which case the coagulation will be superficial. On the other hand, the active electrode may be placed in contact with the lesion, in which event resistance heat will be generated in the tissues to a greater depth, and more extensive coagulation will result. The scar from the biterminal application will be more dense and fibrous than is the case when the tissues are dessicated. This method is applicable especially to the destruction of large malignant growths. The entire growth may be coagulated and removed as an inert mass. The blood vessels and lymphatics in the surrounding area will be sealed by thrombosis, thus preventing hemorrhage and resultant shock, as well as the dissemination of malignant cells, thereby considerably lessening the danger of recurrence. Cases inoperable by other means may be operated upon by this method. Cosmetic results are usually better than with ordinary surgery.

Endosection. The final and most recent use of the high frequency current is for cutting purposes. While we dislike very much to complicate further the already confused nomenclature attached to this method, we would like to suggest the term "endosector" for the apparatus used for cutting purposes. This word suggests "endogenous section," or division of the tissues from within, which is actually what occurs. The prefix "endo" would show its relation to the other methods of surgical application of the high frequency current. As previously mentioned, many terms are now used; among them, "radio knife,"

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"electrothermic knife," "Bovie knife," "endotherm knife" and "acusector." Of these, the most acceptable is probably either "acusector" or "endotherm knife." The word "acusector," while excellent, shows, as mentioned above, no relation to the other forms of high frequency surgical application. The designation "endotherm knife," aside from the fact that it has been adopted as a trade name, is, according to Douglas Morgan,[8] "misleading, as the 'cutting' is done by tissue disintegration and not by the production of heat from within." "Endosector" —a combination of these two terms—would state what actually occurs; that the cutting is done by disintegration from within, and it would have none of the disadvantages of the other names. The method of use could be spoken of as "endosection." In this method, a biterminal, undamped, high frequency current is used. The tissues may be rapidly or slowly cut, the arc from the sector disintegrating the tissues, which divide "like butter." The sector coagulates the wound surface so slightly that there is no interference with healing; but there is, nevertheless, a marked diminution in capillary ooze. In addition, the larger vessels may be clamped and the clamp then touched with the needle. The blunt clamp then carries the current to the vessel and quickly coagulates it, thus eliminating the necessity for ligation. Kelly and Ward[9] use the sector "extensively in place of the scalpel in laparotomy, suprapubic cystotomy, salpingectomy, oopherectomy, hysterectomy, panhysterectomy, appendectomy, intestinal resection and anastomosis, in making vesicovaginal fistula, in trachelotomy for the removal of intrauterine fibroids and in opening the pelvis for drainage." They state that, "In all these there has been an appreciable reduction in the loss of blood by sealing of the capillaries." Nelson Lowry[10] states that for breast amputation, this method "is more simple and speedy" than sharp dissection. Howard Kelly writes, "The dissection is far more beautiful and cleaner, more rapid and more satisfactory than knife work, especially in separating intra-abdominal adhesions. . . . While by no means altogether rejecting the scalpel, I give the sector the leading place and decided preference in my daily work, relegating the scalpel to a subordinate position."

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Summary. To summarize, there are numerous methods, both medical and surgical, of applying the high frequency currents. They may be listed as follows:

HIGH FREQUENCY CURRENTS

I. MEDICAL APPLICATION.

1. ***Monoterminal application*** — A. Vacuum Electrode; B. Non-vacuum Electrode (These produce mobile surface heat and counterirritation).

2. ***Autocondensation*** — (This causes dilatation of the peripheral capillaries, a transient reduction in blood pressure, and an increased output of urinary solids; it acts also as a general sedative).

3. ***Diathermy***
   - Direct
     - Local — (This produces more or less deep, readily controlled and localized resistance heat and increased blood supply. It is probable that there are additional effects yet little understood).
     - General — (Large perforated metal electrodes are placed over the entire back and over the anterior surface of the body from symphasis to clavicles. This method has very recently been used to raise body temperature, especially in treatment of paresis).
   - Indirect
     - Monoterminal
     - Biterminal

     (Either method provides a mobile method for local application. The effects are the same as with direct diathermy, but they are apparently more superficial).

II. SURGICAL APPLICATION

Endothermy

1. Monoterminal (Destroys tissue by dessication).
   - Non-contact — Indirect—most superficial; Direct—more superficial
   - Contact — —less superficial
2. Biterminal (Destroys tissue by coagulation).
   - Non-contact — —less penetrating
   - Contact — —more penetrating
3. Endosection (Cuts tissue by endogenous disintegration).

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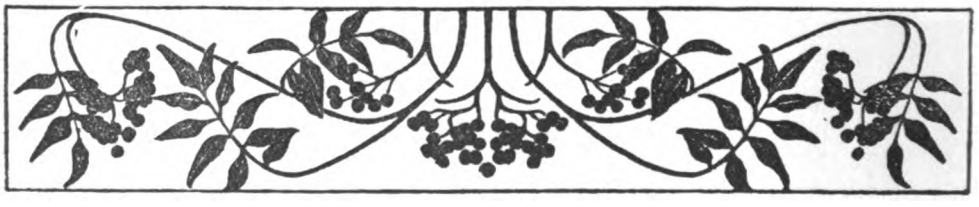

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THE OBSTETRICAL REVIEW CLINIC

A Post-Graduate Course in Practical Obstetrics, with Reports of Cases, Clinical Conferences, Answers to Queries, etc.

Conducted by J. O. ARNOLD, M.D., F.A.C.S.
and his Associates in the
Department of Obstetrics, Temple University School of Medicine

Address all communications to "The O. R. C.," Temple University Hospital, Broad and Ontario Streets, Philadelphia, Pa.

[By way of explanation it may be said that the "divers and sundry clinical material" appearing from month to month in the O. R. C. is selected and presented with the primary purpose of helping the GENERAL PRACTITIONER, *and with an especial thought of its interest to the* MEDICAL ALUMNI *of Temple University.—J. O. A.]*

Item 92—Four Cases of Abruption—one a week, for four successive weeks—and all so interesting, and so interestingly different in so many ways, that they would seem to merit a place in this month's O.R.C.

The First, a primipara, age 22, at term, with an average sized child, in normal presentation and position, and slightly subnormal pelvic measurements. This patient, while free from any evidence of toxemia, or organic disease, was rather frail, and of poor musculature. After about 20 hours in labor, much of which was unusually hard, she became so exhausted as to demand assistance and relief. Under light chloroform anaesthesia, we did a moderately difficult forceps delivery. The membranes had ruptured immediately before beginning the delivery, and we found there had been considerable intrapartum bleeding. Blood escaped freely with the amniotic fluid, several old, black clots came down with the child, and the placenta showed distinctly where a considerable area had been prematurely detached, probably late in the labor.

The baby was much the worse for the condition, and required constant attention for several hours. There was no evidence of traumatism, hemorrhage, or brain injury, but the child's condition never warranted a favorable prognosis, and it gradually grew more feeble, and died on the third day. The mother was very weak, and anemic, and made a rather slow recovery, but

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was able to leave the hospital much improved in two weeks. This was a case of intra-partum hemorrhage, from partial premature detachment, probably due to the violence of the labor or some condition incident to the labor, at least no other cause was discovered.

The Second, a few days later, was a most unusual case, in no respect like the first, except in the fetal mortality.

This was a strong, healthy, able-bodied woman, 30 years old and at term in her second pregnancy, having had one normal pregnancy and labor, with healthy living child, 8 years ago. In six hours of very moderate "pains" she reached the end of her first stage of labor, when it was discovered that there were no signs of fetal life. Chloroform was given at once, and an easy low forceps quickly done, but the relatively small baby (5 lbs.) had no heart beat, and could not be resuscitated.

The delivery of the placenta followed quickly and easily, and revealed the probable cause of the child's death. There had been no bleeding, antepartum or intra-partum, revealed or concealed, but the placenta was of a peculiar wedge-shape, almost a perfect triangle in outline, very thick at the base, and tapering down to a thin point where the cord was attached. The entire uterine surface gave the appearance of having been detached for some time, especially over its lower half. There was a smooth, glossy, almost membranous surface, with no evidence of bleeding, recent or old.

Undoubtedly the early intra-partum separation of this anomalous placenta caused the child's death, but why it was thus prematurely detached, without sign or symptom, is as hard to explain as its freakish size and shape.

The Third Case was still different, but in several respects approached more nearly the classical clinical picture of "accidental hemorrhage," commonly set forth in text-book descriptions.

This patient is 38 years old, with a history of five normal labors, and was in the 8th month of her sixth pregnancy, with no evidence of ill health or toxemia.

The significant point in her story is, that on the day

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before her hemorrhage, after returning from a rather long walk, she experienced an unusual activity of her baby (compare with *Item* 88), after which she did not feel its movements again.

The next morning at 6 o'clock as she arose to go to the bath room she had a sudden rather profuse flow of blood, and soon began to have mild labor pains, the bleeding continued moderately as labor advanced, and she called a physician, who sent her at once to the hospital. Here she was found to be progressing rapidly in the second stage of labor, with the head in the pelvis, but with no discoverable heart sounds or movements of the child. At 11 a.m., within a half hour after admission, and four hours after the first pain and hemorrhage, she delivered spontaneously and precipitately of a 6½ pound still-born child. A large quantity of recently clotted blood accompanied and immediately followed the birth of the child, and the placenta which came away quickly and easily, gave evidence of its early, and probably complete detachment. There had not been enough hemorrhage in the four hours, to seriously effect the mother's condition, thanks to her multiparity and relatively short easy labor, and she is now (10 days later), ready to leave the hospital, in very good physical condition. One can only speculate on the precipitating cause of this abruption, but it *does* look as if this might have been one of those rather rare instances, in which an entangled cord (causing the child's "struggle") so pulled upon the placenta, as to start an area of separation, with its consequent concealed bleeding slowly accumulating until it excited labor, and forced the further detachment of the placenta, escape of the blood, and death of the child.

The Fourth Case in this series, is even more interesting than the other three, and presents an unmistakable picture of abruptio placentae in the most striking and dramatic colors.

For the purpose of clinical teaching, one could scarcely have selected "a case to order," more typically correct and complete.

A primipara 22 years old, with a good personal and family history. Had reached the end of her seventh month of pregnancy, without complaint or abnormality of any kind sufficient to attract the attention of her family doctor.

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At about 8 a.m., and with no discoverable or attributable cause, she suddenly began to have fairly sharp, severe, more or less localized pain in the lower anterior part of the uterus. This pain, while somewhat intermittent in its exacerbations, was constant and never for a moment left her after the onset at 8 o'clock. Three hours later, or at 11 a.m., without previous show or stain, she had what she described as "a sudden gush of a large quantity of blood." A doctor was called, and before he could secure her removal to the hospital, considerably more blood escaped. Just how large these hemorrhages were, it is, of course, difficult to say. A short time later, when the patient was examined in Temple University Hospital, her pulse and general appearance, did not indicate that she had lost a dangerously large amount of blood, and there was but little bleeding at the time. The uterus was found in a state of most rigid, tetanic contraction, excessively *painful* and excessively *sore* and sensitive to the lightest palpation.

By rectal examination, it was found that effacement of the cervix had taken place, and the presenting head was firmly down against an os that was patulous to one finger.

It was very evident that the intense, unrelaxing uterine contraction had so compressed the placental site that it could no longer bleed, and so driven the head against the os, that further escape of blood was impossible. Movements of the child, of course, could not be felt, nor its body palpated through the rigid uterus. Its heart-sounds could not be heard. It was probably dead.

Under the circumstances—a young woman, a dead or nonviable child, no further bleeding, and evidences of some progress in labor—it was decided to give this patient morphia, and hope for spontaneous dilatation and delivery, rather than do abdominal delivery at once. Consequently she was given two courses of narcotics, in the next 18 hours, at the end of which time there had been absolutely no further dilatation of the os, and no noticeable change in any of the above described conditions. Morphia in gr. ¼ doses gave but the slightest and most transient relief. Caesarean was decided upon, and done under ethylene anaesthesia.

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The abdominal cavity contained approximately 500 c.c. of sero-sanguinous fluid, or was it amniotic fluid and blood coming through the tubes? The placenta was on the anterior wall of the uterus, under the incision, and was almost completely detached with old retro-placental clots which appeared to have begun centrally and extended outward to the margins. This clotted blood was still under great tension at the time of incision, and was not large in amount—there had been no discoverable enlargement or bulging over the placental site before operation, as found in some cases.

The child (3¾ lbs), of course, was dead.

The amount of blood-loss from the operation was very small. The entire thickness of the uterine wall in the region covered by the placenta at least, was heavily infiltrated with the extravisated blood. Jelly-like, vermiform clots could be expressed from the uterine sinuses throughout the length of the incision.

The uterus and abdomen were closed as quickly as possible, the patient in the meantime having been given 600 c.c. of saline solution intravenously, with adrenalin, and other shock counter-actants, and left the operating table in relatively good condition.

She is making a very satisfactory recovery, never having had any serious discomfort, and we feel sure will go home at the end of two weeks, in very much better condition, than we could have hoped for, by any other method of delivery.

Item 93—Cripples, like misfortunes, seldom come singly. At least, so it would appear from the two patients about to be presented. Indeed as Item 92 amply demonstrates, the verification of this old saying as to the bunching up of misfortunes, is a rather common obstetric experience.

Here are two unfortunate primiparae who came to the hospital at practically the same time. One a frail, highly nervous, fearful little soul, 20 years old and weighing less than 90 pounds at full term. She gives the history of chronic invalidism since early childhood. She has evidently suffered from tuberculosis of the spine, for which she has worn casts or other supporting apparatus most of her life. She shows a moderate kyphosis,

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and a marked double scoliosis. Her pelvis is slightly flattened, and almost symmetrically contracted about 2 c.c. below the normal. Notwithstanding the fact that her husband also is small, she appears to have a relatively large child, whose head remains unengaged, and apparently not easily engageable.

Her clinical companion is an entirely different type of cripple. Whereas the first patient can stand and walk quite normally and easily, this second woman cannot stand or walk without assistance. Her deformities also date from early childhood, when an attack of infantile paralysis left her with atrophied, undeveloped legs, a partially disabled arm, and a very marked lateral curvature of the dorsal spine, with sharp angulation of the ribs and greatly reduced chest capacity on the right side. But since her recovery from this prolonged disease of childhood, she has had good general health. She is now 32 years old, has had no illness in recent years, and has gone through her pregnancy quite normally, except for a mortal fear of its outcome. Fortunately, perhaps for her, though doubtfully so for her child, she is here fully a month earlier than her expected time. Less than 24 hours ago, she had premature rupture of the membranes, and is now in the early hours of labor.

Her pelvic measurements are but little below the normal—27, 24, 19, 30—and while her husband is a relatively large, broad shouldered man, the child does not appear large and the head is already engaged. There is no reason to fear that labor will not continue normally, and with satisfactory results for both mother and child—at least, so far as the immediate results are concerned—but then of course "an eight month's baby will not live!" And so the fear and worry that has so long possessed this unfortunate victim of unwelcome pregnancy will not have ended with the birth of a living child! However, in her case we shall see what we shall see, for labor is progressing quite normally.

It is different with patient number one. She is not in labor. She is at or near term, perhaps even over due. She is manifestly unfit mentally and physically for even an ordinary labor, much less for the type of prolonged and difficult and ultimately

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unsuccessful labor which would so probably be her lot, if indeed she did not fail utterly from primary inertia.

But another important consideration enters into this case, reaching beyond the present, and involving much more than the method of delivery. This patient is not only incapable of labor under the present conditions, but she is undoubtedly unfit to be subjected to repeated pregnancies. Sterilization is unquestionably indicated—and *requested*—and constitutes additional reason, if more were necessary, for deciding that this patient should be delivered by caesarean operation.

Her frail body has weathered the dangers incident to nine months of pregnancy, and it would appear to be our duty now to secure her release from those dangers, by that method which promises the greatest amount of safety in the future, and that undoubtedly means caesarean, with sterilization.

[Ten days later. Both of these patients are convalescing quite normally and satisfactorily. The one from a clean elective caesarean that scarcely gave her any mental or physical disturbance, and the other from an easy "forceps assist" with no unusual difficulties or results from the labor.]

Item 94—Icterus Neonatorum, while not one of the *big* unsolved problems of obstetrics, *is* an unsolved problem, and often the source of no little anxiety to "amateur" parents, and of considerable annoyance and embarrassment to the doctor who must try to explain to such parents, its possible cause and consequences.

There have been all kinds of theories as to its prevalence, its pathology, its varying degrees of severity, and the practicability of its prevention. This is about as far as the profession has gotten—notions and theories.

Better all around obstetrics and higher standards of delivery-room technique, have perhaps somewhat reduced the incident of this malady, and scientific investigation has progressed far enough to free it from the former false label of "physiological jaundice," but it still comes and goes as an almost "to be expected and ignored," accompaniment of birth, in from twenty to fifty per cent of cases.

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Why shouldn't we know more about so prevalent, even though so comparatively harmless an affection of the newborn? Perhaps the very fact of its relatively insignificant consequences, is the answer to this question. Nevertheless, icterus neonatorum *is* an important unsolved problem to the obstetrician.

The purpose of introducing the subject in the O.R.C. at this time, is to call attention to the fact that a member of the Clinic staff, Dr. Morris Franklin, has begun a series of observations and studies looking toward a possible solution of this problem.

For about ten years, now, the head of the O.R.C. has made it a practice in his private work, to clamp and cut the cord at the earliest practical moment, without waiting for pulsation to cease. A specially devised, quickly and easily handled little spring-beak clamp (Item 63), is applied back of Wharton's jelly at the skin margin, and the cord cut on this clamp, which only remains in place until the child is bathed some two hours or so later, when the nurse removes it, and applies a simple pad, and binder.

It has been a noteworthy observation that we have had fewer jaundiced babies following this practice, than following the more orthodox methods. Hitherto we have kept no accurate records, and our observations may have been fallacious. Our primary purpose had not been to find the cause of icterus, but to find a safer, saner, and less cumbersome method of securing the early healing of the umbilical wound.

The observation on the lessened incident of jaundice was a by-product, so to speak, but it set us wondering whether the lessened jaundice was due to the earlier, cleaner closure of the umbilicus, or to the immediate shutting off of the cord circulation, thus preventing the carrying back into the child's body, of a variable quantity of blood that had possibly undergone some haemolytic or other change from coursing through a partially, or often completely detached placenta. Independently of these rather vague notions, Dr. Franklin had expressed his belief that there is probably a relationship between this early infantile janudice, and the *amount,* or *quality* of the blood forced back

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into the child's circulation by the contractions of the uterus on the placenta in the varying interval between birth and the tying of the cord. In his series of cases so far observed, where accurate timing has been carefully noted—giving in one group at least five minutes after the cord ceased to pulsate, and in the other group, clamping immediately—the incident of noticeable jaundice has been almost as ten to one, of the former compared with the latter.

Of course, there are many other factors to be considered, than this time-interval, but Dr. Franklin is desirous of clearing up this point first, and realizing that it cannot be done without a large series of cases, he invites any who are interested, to make tests as above indicated, and communicate their observations to the O.R.C. All that is necessary is to note the number of cases in which the cord is tied or clamped at the earliest practical moment, with the incidence of noticeable jaundice; or likewise the number of cases in which a definitely timed and noted interval—say five to ten minutes—is allowed before tying the cord, with the number of cases of icterus that results.

Who will give Dr. Franklin a helping hand with a series of cases? "The O.R.C.," Temple University Hospital, will always reach him, and bring acknowledgment and thanks.

Item 95—Sterilization that failed to "stay put"! The patient we are about to operate upon this morning is not shown merely to demonstrate another operation. You would have but little interest, perhaps, in "simply another Caesarean." But this woman is supposed to have made her "farewell visit" to our clinic about a year ago, at which time she had her third abdominal operation, and her second caesarean delivery, and at her request, an attempt at sterilization.

It is because that attempt failed, and not because of any willingness on her part, that you see her today. It is the first time in more than 25 years that we have been obliged to do a second sterilization operation on the same patient, and such a case naturally has more than a nominal interest.

The method by which sterilization was attempted on the former occasion, was that of ligating and crushing the tubes, without resecting them.

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It is a method that has been successfully used many times before, and we are interested in seeing, if we can, why it failed this time. Passing over the Caesarean part of the operation, let us look now at the tubes. Here is the one on the right side, and as some of you can see from where you are sitting, it appears perfectly normal, and gives no indication that it has ever been ligated, crushed, or injured in any way. While we have it in hand, we shall resect its proximal end, including, as you see, a portion of the uterine wall, and then close this wound by suture. . . . After some difficulty, on account of the many adhesions, I am able to show you the other tube, which, like its mate just shown, is itself absolutely free from any of the adhesions around about it, and appears normal and healthy.

We shall again resect a wedge out of this cornu of the uterus, and close it as on the opposite side, tying the cut end of the tube to the uterus at this point. The ovaries are normal in appearance, and aside from the dense adhesions, we find no pathology in abdomen or pelvis, and trust this patient may have no further cause for disappointment, or operative treatment, obstetrical or otherwise.

We had hoped to find a possible cause or explanation for the failure of the former efforts to obliterate the lumen of these tubes. No such explanation has presented itself. We are sure we found and ligated both tubes, on that former occasion, but we are not so sure that we carefully and completely crushed each tube throughout the portion ligated. It is just possible that in our hurry on account of the rather free bleeding and other unfavorable conditions, we neglected this portion of the operation. Then again, it is also possible that this method of sterilization is not an entirely safe and satisfactory one, even when most thoroughly carried out. If we use it in the future, we shall at least, make doubly sure to completely crush and destroy the mucous lining of the tubes, for it does look reasonable to expect the cicatrization that follows, to effectually obliterate the lumen of the tubes, and if it does, the method has several points in its favor, over most other methods. It is quickly done, it opens no new bleeding and makes no potentially dangerous anatomical changes.

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Item 96—Answering various inquiries etc.—

1. *The numbering* of the O.R.C. items, as you suggest, *has* a significance. Starting last month with "Item 87" means that 86 similar "presentations" had been "delivered" before the Clinic some time ago, through the medium of a "multiparous" journal which has since succumbed to "menopausal inertia"!

Reprints of most of those former "Items" are yet available, and will be supplied upon request.

2. *Chloroform,* unless specifically contraindicated, as in pre-eclamptic toxemia, or very fat women. In 1011 consecutive deliveries, only 97 mothers knew when their babies were born, in other words, had *no anaesthetic,* 685 had chloroform. Ether is used in most cases of prolonged, or unusually difficult deliveries, or where there is doubt as to the patient's condition, *or the experience of the anaesthetist.*

Ethylene is often the choice in various complications, such as toxemia and cardio-renal disease, and occasionally "spinal" or "local" is used.

3. No, *bags* and *bougies* are not a part of our induction outfit. We have a specially designed *induction tube,* which is much safer than a bougie, and more easily introduced than a bag. Where intubation seems impractical or inadvisable, we now use a "pack," instead of a bag. Just as effective and much more easily done—requiring no preliminary dilitation. In all cases of therapeutic abortion, or induction of labor before the seventh month, the packer is used. A 10 or 12 inch strip of gauze can be carefully and safely carried into the lower uterine segment by means of the "Samaritan packer" (Item 65), and can be relied upon to promptly excite labor, and aid dilatation. Of course there is always more to the induction of labor, than the placing of a tube or a pack.

4. The T. U. *"Obstetric Booklet"* concerning which there have been several inquiries, was published chiefly for students and interns, but the outlines of treatments, emergency procedures, etc., have proven of some general interest, and to meet this demand the book has been placed for distribution (50 cents a copy) with the Librarian, Temple University Hospital,

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Broad and Ontario Streets, or will be sent with the compliments of the O.R.C. to ex-interns and T.U. medical alumni who may be interested enough to drop us a card.

5. *A further* report was promised last month on the two patients in *Item* 87. As you will recall, a differential diagnosis was made in these two cases, by locating the placentae with the stethescope. The conclusion reached at that time, proved to be correct.

The patient kept in the hospital *did* have placenta previa, and while she had no further hemorrhage of any consequence, and was safely delivered by the vaginal route a week or so later, there was no way of foretelling what was going to happen, and therefore it would have been an unjustifiable risk to have allowed her to go out undelivered.

The other patient whose symptoms was so similar, but who was allowed to go home because she did *not* have placenta previa, had no more bleeding, but returned to the hospital in premature labor about two weeks later, and was delivered of a non-viable child, with no unusual bleeding, and no evidence of placental abnormality.

Her premature labor, as well as her previous hemorrhage, were due, in all probability, to conditions resulting from her former operation.

Do not hesitate to ask questions or address communications of any kind to the O.R.C., Temple University Hospital.

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Mahuang

By P. C. Gibbons

Some years ago in my wanderings around China I noticed the Chinese doctors and Chinese people using Mahuang. I wrote a very short article concerning my observations and sent this to two medical journals, but the subject never appeared in print. Probably, not having passed my tests for halitosis and B.O., I was not in a position to make medical observations—in their opinion. I also sent this same data and samples to two large drug firms suggesting research work to isolate the active principle, thinking the commercial side of the situation would interest them. As no reply ever was sent to me the letters and samples probably were disposed of by the 6th Vice President in charge of waste baskets.

Mahuang has had an important place in Chinese medicine dating from the time of Shen Hung, B.C. 2852, and was used for respiratory disorders, various fevers, to promote sweating, reduce temperature, for influenza, and various female disorders. As influenza was unknown to the Chinese years ago under that name the conditions probably were akin to that disease.

Mahuang was held in such high repute that during the Ming Dynasty it was accepted as tribute. Up to recent years the use of this drug was confined to China and the colonies.

In 1924 the brilliant Chinese research chemist, Doctor K. K. Chen, associated with Schmidt, made scientific investigations of the physiological action of Mahuang and taking the pure principles made a study of the product for medical use. The results are known and it now has a large use, the active principle being ephedrine.

In 1885 the customs returns show Mahuang was exported in quantity from several places—966 piculs from Newchang, 213 from Tientsin, 66 from Hankow, 31 from Ningpo (picul= 133⅓ lbs.). This was the only trade between the ports and as far as is known none with foreign countries.

In August, 1926, it was exported from Teintsin. There is no favorable way of securing data relative to individual exports of the product from China as all drug exports are classed under one head in Customs returns.

The drug occurs in two forms—as a whole plant 10 to 12

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inches long, called Ephedra Sinica, including the root. It looks like grass and there are no leaves on the stems except little broets. It may occur in the form of chopped stems about 1/2 inch long and 1/16 to 1/10 inch wide. Sometimes the drug is powdered and put in bags for convenience in transportation; in which case the roots are discarded and in the case of woody Mahuang the woody branches also must be discarded.

The Botanical identity was studied by J. C. Liu and according to this authority the old records of its being Ephedra Vulgaris is not correct. Whether the opinion is based on samples taken in Hankow where the species has a limited export, is not for the writer to express an opinion. It is claimed the name is obsolete and should be discontinued by botanists.

There are three species of Ephedra occurring on the market as Mahuang; the most reliable Ephedra Sinica (Stapf) which together with Ephedra Equisetina (Benge) grows in abundance along T'ai-hong-shan mountains which follow the Great Wall of China in Chihli province then South through Shansi marking the province of Chihli, Shansi, Shensi, Kansu, Jehol, Chahar, Suiynau, Hoyan and Hupeh area like a letter T.

The third species is called by Smith, Ephedra Distachya and grows on the Southern arm of the letter T from Shansi to Honan and Hupeh. It appears on the Yangtze markets.

All the species I believe are good but the active principle varies.

The chief markets for Mahuang are at Tientsin, Newchwang, Ch'chow, Chengchow and Hankow. There are many differential characteristics of Chinese Ephedras—governed by the height of the plant, the place on the plant where the green stems grow and the color and position of the minute leaves.

The plant has no flowers or fruit and there are male and female plants.

The red raspberry-like fruit bears in each berry of the Ephedra Equisetina one seed, the other two specimens each have two seeds in each. The flowers in E. Sinica are mostly terminal growing at the tops of the stems and the others have them bunched around the axils. The drug is collected in the autumn before the frosts, dried in the sun and stored in dry

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places distant from weather influences. The yellow specimens are the result of long bad storage and the grey ones represent material killed by the frost.

The drug collected in the autumn is 3 times more potent than that collected in the spring and there is a gradual increase in potency until late in autumn, when it again declines in spring and the early summer collection is not made, but an attempt made to keep the crop until autumn.

In 1887 the Japanese Nagai isolated from Mahuang alkaloid, ephedrine and later pseudo-ephedrine.

Drs. Chen and Schmidt introduced Mahuang to scientific medicine which was formerly used in asthma and now valuable in hay fever, urticaria, etc.

Pseudo E. is, I believe, in the early stages of research and is prominent as a diuretic and reacts like pituitrin while Ephedrine is similar to adrenaline in action and chemical structure.

The ratio, I believe, of the two isomeric alkaloids in Mahuang is 4 parts of Ephedrine to 1 of Pseudo Ephedrine. More than 1% of the total alkaloids is present in a good sample.

The green twigs of Ephedrine Equist. are richest in alkaloids, but it is difficult to get them without useless woody stems and this is true in a less degree for E. Distachya. It is preferable to handle the regular supplies of E. Sinica from which the root can be removed by one cut of an axe, giving a bundle of green twigs free from worthless woody branches and stems.

China has many other plants which deserve study. Aconitum will deserve study as a great many species are found in China, 9 in the Amur region, 4 near Peking and 3 in Mongolia. Medicago Saliva (called mu-su) is avoided by the Chinese as it is thought to make one thin. If so the commercial prospects are excellent in the U. S. Nelumbium Speciosum is a very popular and useful plant and every part is used by the Chinese —root, leaves, fruit, seed, caulicle and rootlets on the lower part of the stem or at the top of the rhizome.

Now that Dr. K. K. Chen is engaged in research work in the U. S. the writer would not be surprised to see alkaloids isolated from many of the Chinese drugs, and he hopes his efforts will be rewarded on the tael end and not on the tail end.

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Stricture of the Female Urethra*

Recent Clinical Studies

By WINFIELD SCOTT PUGH, B.S., M.D.

INTRODUCTION

A few years ago there appeared a very cleverly worded advertisement, the substance of which was as follows: "Great oaks from little acorns grow—great aches from little toe corns grow." A similar phrase might well be allotted to the female urethra. It is such a little organ, mighty short on anatomy but very long on pathology. It has always seemed to me that there were two subjects greatly slighted in the anatomical courses. One is the great muscle groups of the back into which, however, a few delve, but of the female urethra none gives a thought.

We are developing a so-called advanced school of urology, whose members do not like to have their names associated with the study of venereal disease. Neither do they derive any interest from the study of the male and female urethra. In our humble opinion certainly 75% of the patients who come to the urologist have a decided venereal background. No one can therefore afford to overlook the urethra. It is not merely a tube through which to pass a cystoscope but an organ of great importance. Disease involving the female urethra may similate lesions of the kidney and organs even much more remote. Great damage may be done before the little joker in the urethra is discovered. When a patient is temporarily relieved by a cystoscope at least think of the woman's urethra.

The archives of medicine hold scant but rather interesting comments on stricture of the female urethra. Von Frisch tells us that it has been mentioned at least as a possibility by Fabricius of the old anatomical school of Padua. The first real description is that of Lisfranc in 1824. Following this author it next appears in the literature in the works of Civiale in 1850. To this author also belongs the credit of having established the response of the sympathetic nervous system to

*A Clinical lecture from the Department of Urology, City Hospital, New York, March 5, 1930.

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urethral lesions. This is a factor of considerable importance. Newman in 1875 recognized the importance of stricture of the female urethra and advocated its treatment by electrolysis. Fissaux in his reports in 1879 reviewed the subject and emphasized its importance.

Van de Warker in his papers in 1887 and 1890 strongly brings this subject to our attention. This writer states that all of the great writers on urinary and gynecological conditions seems to treat with silence a matter of great import, namely that of stricture of the female urethra. His articles are of striking interest. It was Skene who in 1887 called our attention to the fact that while urethral stenosis in the female was not an everyday occurrence, it was seen often enough to require serious consideration. On the basis of Skene's statement this matter was taken up by the London Obstetrical Society in the same year. Many interesting comments were made at that time.

Otis in 1892 stated a systematic study of obstructive lesions of the female urethra, but for some reason they were never carried to a successful completion. The following conclusions from some of the writer's works are most striking and convincing. He states that "strictures of the female urethra occur in a sufficient extent to induce reflex conditions as varied and severe as those of the male." Otis also believed that where lesions of the female urinary apparatus did not respond well to treatment, the urethra should be explored with the bulbous sound, and the urethrometer. Urology owes a great debt to Otis for his introduction of the bulbous sound, for without it the excellent work of others would not have been possible. It is said that he also advocated the use of the wax tip, later amplified by Kelly and Burton Harris, for use in vesical and ureteral lesions. In the text-books on urology and gynecology there is comparatively little space allotted to the subject of urethral stricture in women. The possibilities of urethral infections aside from definite stricture are so well known as to require but little comment. It, however, remained for Stevens of San Francisco in 1920 and 1922 to make the first real scientific investigation of this disease.

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INCIDENCE

It is apparently routinely taught and generally accepted that stricture of the female urethra is rather a rare entity. Of this we have never been convinced. An examination of the literature is not of great assistance as it is scanty, to say the least. When we first began our original studies we examined over 3000 gynecological and urological records in this country and abroad. We found but four cases definitely diagnosed as urethral stricture of the female. These were all cases that were readily diagnosed, one as carcinoma, one obstetric tear into the urethra and three cases of marked gonorrheal infiltrations. Since the foregoing we have made other extensive reviews, with practically no further results.

Hunner in his contributions to the literature speaks of narrowing of the urethra associated with ureteral lesions. In some of his case records there is evidence of marked urethral infiltrations. He is quoted by Stevens as finding 60% of those suffering from ureteral lesions to have a urethral narrowing as well. Bugbee states he is surprised to find the extent to which stricture of the urethra exists in women.

Osgood tells us that the urethra of the female is analogous to the membranous urethra in the male. Stricture of this portion of the urethra in the male (because of the squamous epithelium, which offers resistance to infection, and its absence of glandular structures in a continuation of the mucosa) is rare. This author says this condition exists in the female urethra as well. Reasoning in this manner would seem sound, both from an anatomic as well as theoretical standpoint.

W. E. Stevens believes that stricture of the female urethra is usually missed by both the urologist and gynecologist. Of this there can be little doubt. This careful student found ninety cases of stricture of the female urethra in one hundred and sixty-nine urological cases. We would do well to take these statements seriously. Certainly they emphasize the importance of the disease.

Wynne quotes Winckel as having noted three cases in three thousand records. Winckel in his early essays and in his latest textbook also states that we are dealing with a rare lesion.

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Meisel of Budapest found three hundred and seventy-eight strictures in the male to one in the female. Pasteau collected twelve cases from the literature. Fischer records four cases in four thousand records. Herman in England noted sixty-nine cases.

The similarity in the percentage reports in the larger series of cases are rather striking. In a previous report we stated that we had found urethral stricture in thirty-five out of one hundred and eighty women examined, that is, presenting themselves for urological examination. Since the above notes were made we find that our record is now eighty-six cases found in four hundred and sixty examinations. While this is by no means a larger number we cannot help but feel that this incidence appeals to us as fairly frequent. Most writers stress the point that stricture of the female urethra is rare, and with this dictum in mind, few of us look for it. In fact Stevens is quite correct when he states most of us are too ready to accept the statement as final.

Etiology

In discussing the cause of this condition many medical writers seem to have ventured quite far afield, while the real factor was among the best known offenders. Winckel, undoubtedly an investigator of great repute, and an authority on diseases peculiar to women, believes that trauma is important. He in fact insists that birth injuries stand first as etiological factors. Catheter injuries and other accidents are advanced by Stoeckel, Pleschner, Hoehne, Teleky and others. Neoplastic pathology is drawn on extensively, more particularly by Goldschmidt, Heinrichsdorf, Kleinwachter and Teleky. In a careful review of these papers no great detail as to the pathology is given, so that often one is left in doubt as to the exact lesion. Two new growths are particularly mentioned, one is caruncle and the other papilloma. The members of the London Obstetrical Society in the late eighties were impressed by the relatively frequent occurrence of lupus and luetic ulceration in these cases as noted in the excellent reports of Herman, Duvean, and Gallapin. The latter also mentions syphilis as a cause. In several of the papers presented at the London Con-

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ference some of the cases reported would seem to be more suggestive of syphilis than tuberculosis.

Bumm and Wagner according to Wertheim mention congenital narrowing, senile prolapse and vesico-vaginal fistula as not unusual factors.

It is in America that one hears most of the gonococcus in its relation to urethral stricture. Skene was of the opinion that the cause of stricture in the female was the same as in the male, in other words, the gonococcus in the vast majority of the cases.

Graves speaks of gonorrhea as well along with birth trauma as a factor. Kelly, Burnham and also Osgood mention gonorrhea, syphilis and tuberculosis in the etiology. Hunner and others refer to focal infections as a possibility. In view of the great army of gonococcus infections which we have treated or supervised during the past twenty-six years, we are a bit skeptical of focal infections in connection with urethral disease. We agree with Stevens that focal infections must play a very small part.

In any discussion of etiology, if one considers the common conditions first, he will be less likely to err. When dealing with any condition of the genito-urinary tract the gonoccocus must not be lost sight of. Those of us who have been long in the struggle with this organism, realize only too well its extensive distribution and its refusal to consider race, creed or social status.

In discussing gonorrhea in the female with physicians at a consultation it is surprising how few of them think of a urethral infection as associated with a vaginitis. In our consultations we often see cases of gonococcus infection limited to the urethra, and many in which the urethral infection is overlooked entirely.

To what extent is a urethritis associated with a gonococcus vaginitis? In the literature we find Brünschke recording 90%, Bumm and Brose 95%, Finger and his pupils 75 to 90%, Faby 52%, Laser 33%, Luczny 85%, Schultz 78%, Boye 88%, Steinschneider 91%, Welander 89% and Pryor 90%. Of particular severity is the gonococcal honeymoon urethritis; in

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which the vagina is often not infected at all. We believe the pregoing figures are impressive and stress the gonococcus as the chief factor in the disease under consideration. Another important point is that the gonococcus persists longest in the anterior third of the urethra, the most common location of stricture. Practically all of the so-called etiological elements sink into oblivion when compared with the gonococcus.

Embryologic conditions may produce factors which to say the least predispose to urethral obstruction. This is rendered evident by the excellent work of Bugbee and Wollstein. In a series of 86 cases we have a definite history of gonococcus infection in 77, chancroids in 3, keloid 1, syphilis 1, vague etiology 4. We cannot escape from the impression that the doubtful cases are Neisserian infections.

Pathology

We believe, as above noted, that there is practically always an antecedent urethritis. Urethritis practically always becomes chronic, many are not seen and not cured. Our knowledge of the pathology is not extensive. The stricture formation, however, usually begins on the floor of the urethra, where the gonococcus infection has been most intense. From this point the process will often encircle the entire urethra and annular strictures are not infrequent.

From our examinations we consider the strictures as being soft and dense. The Oberlander classification of infiltrations as soft strictures and hard strictures of the first, second and third degree may well be applied to the female urethra. In traumatic or obstetric lesions we have the usual surgical pathology of a crushing lesion, ulcers and neoplastic conditions differ in no way from these lesions, situated elsewhere.

Symptoms

In investigating urethral lesions a careful history is of the utmost importance. This, however, is where we usually run into difficulties. We all know how difficult it is to obtain a venereal history even in our better class of patients. This is

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undoubtedly incident to the hypocrisy which surrounds a discussion of sex matters in this country. It cannot be denied that many women suffer from gonorrhea for a long time without knowing it. A history of "whites" should always arouse our suspicions. A history of childbirth injury or an operation following the same should be carefully noted. Urethro-vaginal fistula is of particular import. Obstetricians tell us that injuries apparently mild, sometimes produce these lesions; of this we are not convinced. A history of malignant disease, tuberculosis or of scarlatina, typhoid fever or pneumonia may be of assistance. Do not overlook the local use of cauterants, or strongly astringent vaginal douches. The latter is particularly important at times.

Among the clinical cases reported we see statements to the effect that the typical symptoms do not become marked until the patient notes an increased difficulty in emptying the bladder. This difficulty may sometimes be extreme. One would naturally expect this to occur, but it is by no means always the case, except in late cases with complete obstruction. In a number of cases the symptoms will more strongly suggest abdominal and renal lesions. In others the symptoms are apparently so remote from the urinary system that one may be inclined to class these patients as neurotics.

The retention of urine by women for long periods is so common, that they often think a retention is natural. Far more do women complain of dribbling (really an incontinence of retention) than they do of obstruction. Slight obstruction is, however, often sufficient to produce a marked cystitis and urinary changes. Some writers believe that symptoms of ureteral stricture occur earlier in women than they do in men. This remains to be proven.

In our cases, the symptoms impressing us as of most importance were dysuria, urgency and frequency. Signs of a toxemia were also not infrequent. A series of cases reported by Stanton are of particular interest. The symptoms in his group were often referable to the upper urinary tract and bring out the relationship between the urethra and kidneys through the sympathetic nervous system. This syndrome has

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been but little noted before, but we have seen it in many of our patients. We have learned, as you will note, that there are no classical symptoms in urethral stricture of the female. If, however, we take a careful history, and make a careful complete urological examination we will usually locate the lesion. When a male patient comes into our office we never fail to make a careful urethral examination, using a bulb whenever practicable. Do we examine the female in the same way? The answer is, the gynecologist never and the urologist rarely. It should always be done, using the bulbous bougie for the purpose. We will miss most of them with a metal sound.

Urethroscopy is always indicated in urinary lesions of the female. It is seldom done, even by our most experienced technicians. When we are able to use a small urethroscope we find at times that it meets an obstruction and on withdrawing it the lesion is definitely seen. Hard infiltrations will at times grasp the instrument rather firmly.

In our hands the roentgen ray, as a diagnostic medium has not been at all satisfactory. It is hoped that later the new technic of urethrography will facilitate the diagnosis.

We now arrive at the point which probably will cause most discussion. Namely, what do we consider a stricture? Students of anatomy are wont to speak of the female urethra as a musculo-membranous tube of about 2½ to z. cm. long and generally about 7½ mm. in diameter. Its greatest width is midway in its course; where the dilatation is somewhat spindle shape. It is naturally important to consider the average normal size of the canal at its narrowest point. This particular area in the experience of most observers is just within the external urinary meatus.

Herman found that the urethra in 56 patients between the ages of eighteen and seventy varied between 7 and 12 mm. in diameter. Van de Warker believes that a urethra taking a bulb less than 16 F is abnormal. Stevens speaking from a large experience tells us that strictures above 18 F will often cause symptoms and regards 27 F as normal. His list of averages is interesting. In 114 patients in which the urethra

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averaged 22 F he states the lesions were quite apparent. The smallest stricture noted by Stevens was a filiform.

In our first report we stated that none of our patients took above a number 18 F, and all had symptoms. Since writing the above, we have seen several cases in which the calibre was above 18 F, and were undoubtedly strictures. We believe that Bugbee is quite conservative and that Stevens is non-radical. Urethral lesions in the female are usually of the soft yielding variety, dense forms are rare. This undoubtedly accounts for so many of them being overlooked. More of this anon.

The following table of 86 cases represents pretty well the average calibre of the strictural urethra, met with in our cases.

Filiform stricture	1
No. 8 F	3
No. 12 F	10
No. 14 F	21
No. 16 F	17
No. 18 F	13
No. 20 F	11
No. 22 F	10
Total	86

Location

The lesion may involve the entire urethral canal or be situated in any one portion. The involvement of the anterior urethra particularly at the meatus, is decidedly more common. A series of cases collected by Wynne show 4 involving the entire urethra, 9 at the external meatus, 14 in the anterior third, 7 in the middle third and 4 in the posterior third. In our own series the locations were as follows:

External meatus	52
Anterior third	24
Middle third	3
Posterior third	7
	86

Diagnosis and Prognosis

Stricture of the female urethra as a definite entity must be recognized. Its effects are similar to those in the male, and one sees all forms of obstructive effects. Dilatation of the bladder, ureters and renal pelvis certainly occur. The diagnosis

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should present no difficulty. Inspection, palpation, the use of the bulbous bougie or olive tip and the urethroscope, should leave no doubt. The prognosis depends largely on the etiologic factor. Soft infiltrations usually respond well to treatment. The hard infiltrations are always a source of doubt as are those in the male.

TREATMENT

The female urethra is a delicate and very sensitive organ a fact which must be considered in its treatment. Treatment is essentially dilatation of which two forms may be considered, i.e., gradual and modified rapid. Other methods such as rapid dilatation and electrolysis have been mentioned but need not be considered.

These procedures, it will be understood, apply to those cases in which complete obstruction does not exist. In the complete obstructive types internal and external urethrotomy as well as resection have been performed. If the stricture has been found to be very soft, as detected by the bulb, careful modified rapid dilatation may be employed. This method necessitates the use of general or caudal anesthesia. Where modified rapid dilatation is employed, it is not advisable to go beyond find points in one sitting. We once saw a prominent gynecologist use a pair of forceps in an attempted rapid dilatation with severe hemorrhage resulting. Personally we should never recommend any form of rapid dilatation. Gradual dilatation is always best and should begin with the largest sound or bougie that will pass the stricture. We then increase two numbers a week until we reach No. 26, which is about normal. It will, however, do no harm to go a little beyond this. After the above procedure a large dilator should be passed once a month for a year and at intervals even after this.

In dealing with the dense infiltrations one must be a little more cautious. The yielding of the tissues is much less and possibilities of bleeding and infection greater. We have always succeeded in dilating a hard stricture but it takes a longer time and they are liable to recur. Kelly has instructed this class of patients how to pass the sound so that they can do it home. We cannot recommend this procedure.

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In cases of filiform types and complete obstruction it may be necessary to resort to operative procedure. In the former we have passed a filiform bougie and over this a Rand tunnelled knife with a five blade is threaded. The stricture is then incised on the floor. In the complete obstructive types retrograde catheterization through a cystotomy would seem to be the procedure of choice. This, however, is rarely a necessity. Hoehne has reported several causes in which this procedure was employed with success. Osgood has recommended vaginal urethrotomy.

In the treatment of strictures due to neoplasms, where the removal of the mass is impracticable, radium may be employed. We have recently had one case, in which we were apparently successful. Two weeks after leaving the hospital the patient died of apoplexy, evidently a metastatic condition. Kelly and Burnam, while advising radium in some cases of urethral stricture, state that they have had no actual experience with it. There are a number of measures advocated for the treatment of this disease, which we have not mentioned, the reason being that they are obsolete. A long experience with urethral lesions has taught us to always try the simple remedies. When applied with gentleness they are usually productive of the best results.

Summary

1. Stricture of the urethra in women is common.
2. The principal cause is a gonococcus infection.
3. The pathology is quite similar to that of urethral stricture in the male.
4. Its common location is at the external meatus.
5. The most common symptoms are frequency, urgency and dysuria.
6. The diagnosis may always be established by olivary tip or bulbous bougie.
7. Prognosis is good in soft infiltrations, while that of dense strictures are doubtful.
8. Treatment is by gentle dilatation—operative procedure to be avoided if possible.

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PURKINJE'S MICROSCOPE *In the German University at Prague*

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V Vratislavi 29. Srpna 1844.

Milý přátelé!

Že od Vás, ať listem, ať duchem odloučen nejsem, můžete uznati z toho, že, vzav tomu draby! to se do možnosti snažím, s Vámi i s vašimi trudy slaučiti se zase až do smrti. Prostřednictvím P. K. Klobučerka obdržel sem plnou zadanou rakouskou občanskou právo, a včer sem tím samým Pánem prostředníkem podal prošbu Kolovratovi o profesuru fysiologie v Praze. – Nevím zdali vůbec aby o tom Vážkerný zpraven byl; řekl mi, že se žitě má svobodomyslnosti. Ale však posledníkrát sem mu k tomu nabádal abych se přeměnil. To pominutí občanského stavu se jeho radou, a snad bezpotřeby; druhá věc byla abych prošbu podal Císaři, ačkoliv v mém právu občanském již i výslovně obdržené jest právo (což sem vlastně požádal) hlásiti se k auřadům učenýmu v Rakousích. Hlásil jsem se u Turnheima a později na rad K. u Kolovrata. Uklidáme jak to dohrbůh rozstrkne.

Z přiloženého listu od Pastora Češmanského Tidewica uvidíte že sem jednání o koupi tamějších Komenských rukopisů zase obnovil a že se zdají nyní náchylnějšími býti snad z té příčiny že Ředitel gymnasiální Schöler jenž nejvíce na tom stál aby ty rukopisy o památkách a podobinách Komenského v gymnasiální bibliothece uložený byly, do Erfurta přenešen jest. Z vašeho listu neuvidím žeby všem o tom tamním Čelakovském zprávou byl dal, nebožby ste sotva byl tak mlčky opominul a zrušil mé mnoholetá namáhání.

Bylbych byl dříve odepsal, ale nechtěl sem tak prázdnou rukou přistoupit, i opsal sem pro Vás z vlastnoručního spisu Komenského, obsahujícího obnovení a předělané duchovní písně, vůbec jenžby za příklad recensí těchdej. Jiného veršu slaučiti a uchovejmu vytisknouti byti mohl.

Jestli Musejní sbor ty rukopisy dokonce mítí nechce, nechat se několik řádků po německu napíše k mému vysvědčení. List Tidewica zase mně odešlete. Brzké odpovědi očekávaje, vaši manželku uctivě pozdravuje a dítky líbaje zůstávám

Váš

vždycký Jan Purkyně

LETTER BY PURKINJE

Courtesy of his grandson, Professor Cyril Purkinje of Prague

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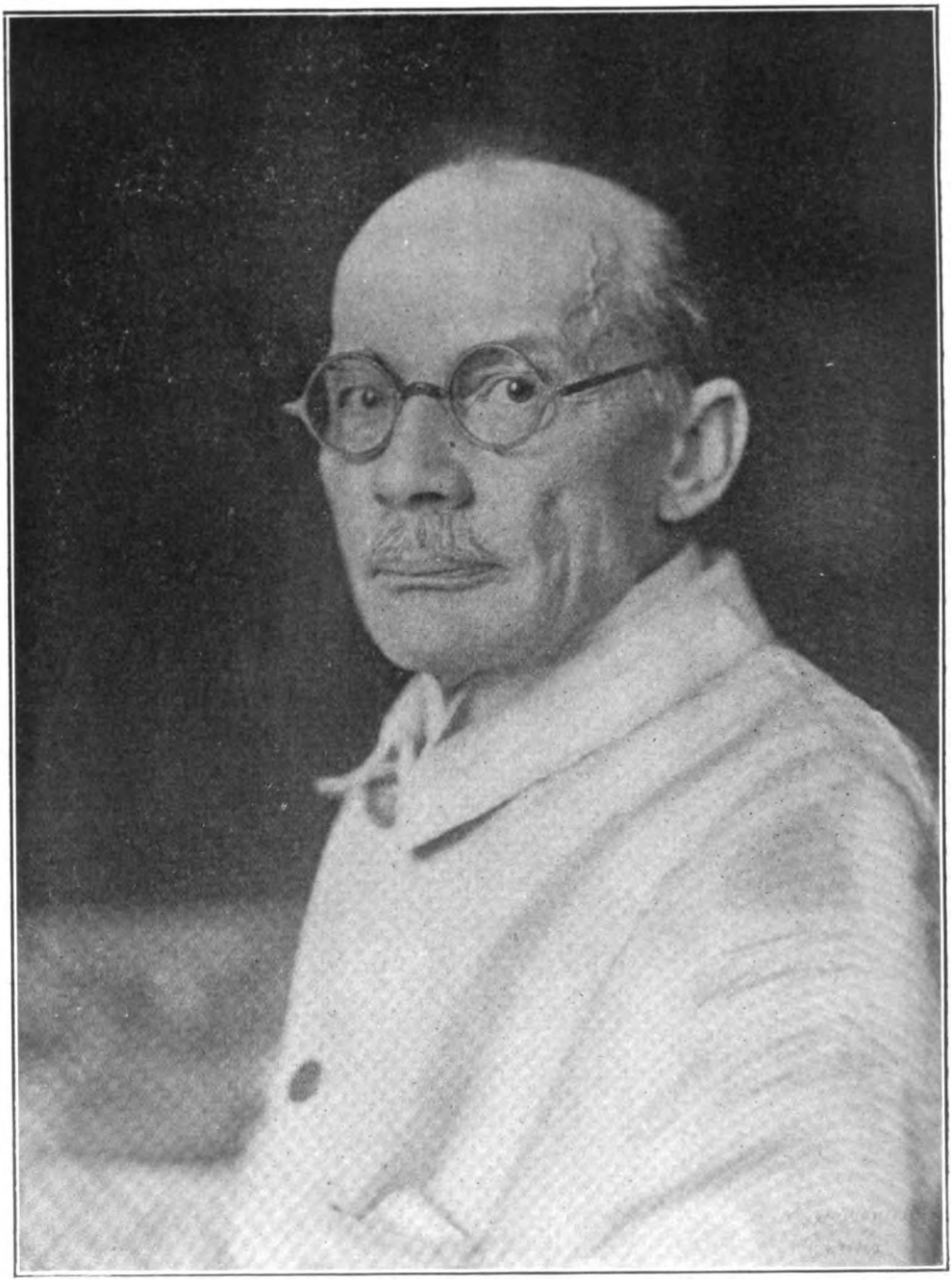

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Altitude and Age

By JEAN HERCHMER

"And in the last days it shall come to pass, that the mountain of the house of the Lord shall be established upon the tops of mountains, and it shall be exalted above the hills."—(Micah, 4-11).

Of all the problems that have baffled the mind of man, surely the most perplexing has been that of old age: for although we are assured that life as a biological principle could go on forever, in spite of all our efforts we still continue to grow old and die, nor has any man as yet placed his finger upon the cause.

Metchnikoff looked upon death as one of the great disharmonies of nature. He considered it a pathological condition, and since his time intensive study has been going on everywhere in an attempt to unravel its mysteries. (Life of Metchnikoff, by Olga Metchnikoff, p. 185).

At a meeting of the American Public Health Association 1926, Professor Woodruff, of Yale, stated that no natural death occurred in a minute organism, the paramecium, in a period of time corresponding to 250,000 years of human life. At the same meeting Professor Fisher, also of Yale, announced that the cells of the body are potentially immortal in a purely physical sense. (Science News Letter, October 23, 1926).

In 1912, Alexis Carrel of the Rockefeller Institute began an experiment which has lasted seventeen years. He cultivated fragments from the heart of a chick embryo. They began to

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surround themselves with connective tissue cells and every 48 hours the colony doubled itself. If they had not been controlled, Dr. Carrel states "they would have reached a volume greater than the Solar system."

"Time has no action on these tissues," he says. "They are immortal." "Animal tissues in general," he continues, "must be considered as capable of unlimited proliferation in time as well as space. These facts are of profound significance. They demonstrate not only that tissue cells are endowed with potentialities far greater than they display within the body, but also that these potentialities become active under definite conditions, i.e., the elimination of certain metabolic products, and the presence of proper nitrogenous food."

What Causes Senescence and Death? What then causes death? By what mechanism is it brought about?

Two significant factors were mentioned by Dr. Carrel; one the multiplication of the cells; the other their inhibition. The tissues were inert until they were fed certain foods, then they were compelled to multiply. If they were allowed to multiply without being controlled they would have grown to enormous dimensions. But in the adult body they are inhibited by blood serum. "In the light of this new knowledge," states Carrel "it becomes entirely probable that the resting conditions of adult tissues depend on the humours in which they are immersed" (Above).

Many theories have been advanced to account for senescence, but they mainly fall into two groups. One holds that death is the necessary and natural concomitant of all living things, the inevitable outcome of the life cycle; the other looks upon it as a secondary condition set up by the incomplete elimination of toxic products. (Senescence and Rejuvenescence, Charles Manning Child, p. 183).

Professor Weismann was one of the first to proclaim that death was not a primary necessity, but held that it was secondarily acquired as an adaption, a chance variation which was inherited and became universal in multi-cellular organisms. (Duration of Life, p. 25).

Metchnikoff held that senility was a pathological condition,

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which caused the enfeeblement of the cells, and the accumulation of toxic poisoning which occurs during the whole of life. Sedgwick Minot considered Old Age due to the gradual atrophy of the cell nucleus, while according to Von Hansemann, it is the atrophy of the sexual organs. Another explanation has been advanced by Professor A. V. Hill, the London physiologist, who believes that both life and death are controlled by oxidation.

There are many processes continually at work in the body, chemical, mechanical, electrical and biological; but there are two main factors upon which the whole structure rests, one the intake of fuel and food; the other the elimination of waste.

The elimination of waste is dependent upon the oxygen supply to the tissues, and herein lies the whole key to the problem. When a furnace is filled with clinkers and ash, it does not matter much how great the supply of fuel, for only a certain amount can be taken care of; so too with the human furnace. The carbon dioxide in the blood and tissues has a direct bearing on the amount of oxygen absorbed by the blood, and incidentally to the amount of oxygen in the surrounding atmosphere.

Herbert Spencer in a famous passage defines the conditions of eternal life; perfect correspondence would be perfect life: were there no changes in the environment but such as the organism had adapted itself to meet, and were it never to fail in the efficiency with which it met them, then there would be eternal existence and eternal knowledge (Principles of Biology, p. 88).

That we live such a few years now is proof enough that there is something wrong, either with the human machine or its environment; and while the physiology and metabolism of the body have been under intensive study for years, it is only quite recently that workers in this field have turned their attention to the physiological equilibrium existing between the gases in the air and the gases in the blood.

How Atmospheric Conditions Effect Age Limits: The blood is a complex physiochemical system composed of many factors, and such is their interdependence, that the alteration of any one, such as oxygen pressure, shifts all the others. In fact, Yandell Henderson states that the amount of alkali in the

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blood of a healthy individual is fundamentally regulated and determined by the pressure of oxygen in his lungs at the altitude at which he lives. In other words, the type of blood that he has in his vessels at any one time is a function of the mean barometric pressure at the place where he is then living. (Physiological Regulation of the Acid-Base Balance of the Blood, and some Related Functions, Yandell Henderson, Yale University, p. 133).

T. C. Chamberlin states that the "atmosphere is to be regarded as the product of a long and complex growth beginning early and continuing even to this day" (Origin of the Earth, p. 166). It increases in density from its outermost limits down to the surface of the earth, where organic deposits, chemical deposits, coal smoke, planeteismal dust and volcanic vapors are being continually produced and add to the weight of the air. The carbon dioxide alone produced by all the coal burned in one year throughout the world would weigh about five billion tons.

At sea level the pressure upon the surface of a grown up person's body has been figured out by Waldo and other physicists at approximately 35,000 pounds. To any one going from the lower to the higher levels, this weight is quite apparent and measurable in terms of fatigue.

Professor Yandell Henderson states that the cells composing the bodies of the mammals of to-day are incapable of living in modern air, and require an atmosphere similar to that of a precarboniferous age. (A. J. Phys. XXV-1910, p. 315, Y. Henderson).

Apparently something happened to our atmosphere to which the human machine could not adjust itself; hence we have death. The problem now before us is to retrace our steps and see if we cannot locate the turning.

THE GREAT AGE OF EARLY MEN: Primitive man believed he would never die, and in all sorts of old records we learn of the great ages to which people lived. That man was naturally immortal is the inference contained in Genesis—(Gen. 2-17)—while the Golden age is the theme of much of the early literature—the Paradise, in the opening chapter of the Bible, having a parallel in the Greek, Egyptian and Persian legends. The

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Persians had a garden of Eden, and the Egyptians a Paradise under the great God Ra. Many are the references to the immortality of man in the literature and the folk lore of the world. (Pagan and Christian Creeds, Carpenter, p. 138).

In Genesis, it will be perceived that there is a sharp decline in the life line immediately after the flood. In the following millenium it had shrunk nearly seven-eighths of its length, for Methuselah, who was the grandfather of Noah, lived longer than Adam, and died aged 969 years; while Arphaxed, his grandson, lived only 338 years, and the succeeding generations gradually become shorter till we come to Abraham and Isaac whose ages are respectively 175 and 180 years. Joseph died at the age of 110 and Moses at 120.

According to the text, this shortening of the years of man's life was the carrying out of a plan, for we read that when the Creator decided to destroy the earth and its inhabitants, he set the age limit at 120 years. (Gen. 6-3).

Biblical critics hold that these ages of the patriarchs refer to lunar years, but a little thought will show how this would be impossible, for if it were true, Adam would have been a father at 11 years, Enoch at 5½ and Selah would have had a son at 2 years, and Eber at 3.

But these ages are as nothing compared to the Egyptian whose records give fabulous ages for their kings, and it is here not without interest to note, that the break in the life line at the time of the flood is borne out and corroborated by both the Chaldean and Theosophical records.

The Chaldean story, as related by Maspero, gives the reigns of the kings from Oannes, who laid the foundation of civilization, down to Xisuthros, son of Obartes who held the sceptre when the great deluge took place. The first king was Alores of Babylon, who reigned for ten sari, amounting to 36,000 years. Then follow the reigns of the ten kings down to the time of Xisuthros, son of Obartes, who held the sceptre for eighteen sari. It was under him that the great Deluge took place. (History of Egypt, Vol. 111. pp, 42, 43, Maspero).

After the waters subsided a new dynasty was founded almost as extraordinary as the one that preceded it. According

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to Berosus it was of Chaldean origin and comprised 86 kings. The first two reigned 2400 and 2700 years. But the last kings "did not exceed the ordinary limits of human life." (Ibid, vol. 111, p, 54).

Neither of these records states how this shrinkage in the life line was accomplished, but in the Commentaries on the Dyzan (that ancient book, from which Madam Blavatsky compiled her Secret Doctrine), it is stated that at the time of the flood "the axle of the earth was tilted. The sun and the moon no longer shone over the heads of the sweat born; people knew frost, snow and ice, and men, plants, and animals were dwarfed in their growth." (Secret Doctrine, p. 329).

According to Professor Charles Schubert the earth has just passed through one of these major readjustments. "Our planet" he says "has undergone at least six of these major adjustments of its mass. These greater movements are the revolutions, that close eras." (The Evolutia of the Earth and its Inhabitants," p. 71, quoted from "Man and the Attainment of Immortality, J. Y. Simpson, Professor of Natural Science, New College, Edinburgh, pp. 15, 16).

This change in the earth's axis is referred to as the "Great Adjuster," by means of which the climate is changed, and a new race produced. "After the great Flood of the third race," we read, "men decreased in stature, and the duration of their lives was diminished" (Ibid, p. 331).

According to the Theosophical records there were several floods, and many catastrophes. This belief was also prevalent among the Greeks, and, although the deluge associated with Deucalion was the most familiar, Critias in the Timaeus relates several as told by the Egyptian priests to Solon. "There is a story which you have preserved that once upon a time Phaeton, the son of Helios, having yoked the steeds in his father's chariot, because he was not able to drive them in the path of his father, burnt up all that was upon the earth, and was himself destroyed by a thunderbolt. Now this has the form of a myth, but in reality it signifies a declination of the bodies moving in the heavens around the earth, and a great conflagration of things upon the earth, which recurs after long intervals. . . . There

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have been and will be again many destructions of mankind arising out of many causes the greatest have been brought about by the agencies of fire and water, and the lesser ones by innumerable causes." (Timaeus, p. 443, Jowett).

THE ORIGIN OF TOWER BUILDING DUE TO CONDITIONS OF ATMOSPHERE: What I wish to point out here is that the records of the ages of the kings, as related by Berosus, may have referred to a previous catastrophe than the latter one recorded in the Book of Genesis. However, what I am leading up to is the condition of the atmosphere after the flood, which I shall attempt to show was the original cause of the shortening of the life line, and the real incentive to the building of the Tower of Babel.

We can only surmise, of course, the attitude of the decendants of the Patriarchs to the fact that they no longer lived as long as their ancestors; but it is not without interest to note, that the curious incident of the building of the tower is repeated in other countries.

According to Professor Lewis Spence, one of the foremost of English ethnologists, "the Ziggurats, or high-terrace temples of Babylon, had their common origin in the high temples of Atlantis, which were the original towers of Babel." (Seattle Post Intelligencer, March 15, 1925). Spence holds that he has more than demonstrated the possibility of civilization having originated in Atlantis for Europe, Africa, and America. "Its architecture," he tells us, "with pyramids and castles on the tops of hills anticipated those of Babylonia and Egypt."

The gods, as is well known, dwelt upon Olympus, and everywhere among European and American nations, we find the memory of a lost Eden "where the gods dwelt upon a high and glorious eminence" in imitation of which the people in all parts of the world, built temples in the hope of achieving immortality. The Toltecs traced their migrations back to a starting point called "Aztlan." In two curious picture histories of the Aztecs they are depicted as starting from an island, which contains in one case a mountain and in the other a high temple in the midst thereof, which without doubt, was the glorious eminence of Plato's Atlantis, the "Island in the Clouds."

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The Moztecs, a Mexican tribe, have also a tradition that "the gods in the day of obscurity and darkness, built a sumptuous palace, a masterpiece of skill, in which they made their abode upon a mountain. The rock was called the Place of Heaven. There the gods first dwelt upon earth, although the world lay in obscurity and darkness." (Atlantis, I. Donnelly, p. 327).

All these records, so it would appear, had their origin in Atlantis, whose "kings, queens, and heroes, later became the gods, and goddesses of the Greeks, Romans, Phoenicians and all other countries." (Atlantis, p. 2).

Why did these kings and queens find it necessary to live on the tops of mountains? Also why did tower building become general immediately after the flood? According to the Hebrew tradition it was an act of open rebellion against God, and because of this it may be worth our while to pause here a moment to examine some of these old records, and the reason they give for the destruction of mankind.

By far the oldest account is the Sumerian which was known to Western scholars through the fragments of Berosus. Berosus was a Chaldean astronomer and priest of Bel, who in the first half of the third century before our era, composed in Greek a history of his country. He could read cuneiform characters, and claimed he had access to documents attributed to beings who preceded man on earth. According to him when Xisuthrus was tenth king of Babylon the gods Cronus appeared to him in a dream and warned him to build a ship and stock it. But he was first to write a history of the world from the beginning and bury it for safety in the city of Sippar, the city of the sun.

In the Zohar it is related that the builders of the Tower of Babel are said to have found a book of mysteries which belonged to the generation destroyed by the Deluge. "That the wicked generation of the Deluge expected to escape divine chastisement by recourse thereto with the help of its mysteries they even prepared to make war on the Holy One, which was also the intention of those who planned the Tower of Babel." (Secret Doctrine in Israel, A. E. Waite, p. 113).

A broken tablet was discovered in this ancient city which

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contained a mutilated version of the flood story, but the original version was recovered in modern times in the long lost archives of Assyria. The account of the deluge is found in the eleventh tablet of the series of Gilgamish. It is the form of a story by the Assyrian Noah, Khasisadra. The great gods took counsel to send a flood upon earth, but Ea, the Lord of Wisdom warned Khasisadra to build a ship and bring into it every kind of seed. After the flood was over, Ishtar, the great Mother wept at the sight. Ea, rebuked the father of the gods and said: "Ill advised was thou, O counseller of the gods, that thou did'st send the flood. On the sinner visit his sin, and on the transgressor visit his transgression. But hold thy hand that not all be destroyed. Instead of sending a deluge, let a lion come and minish mankind: Let pestilence and famine slay mankind; but let there be no flood again." (Folk Lore in the Old Testament, Sir George Frazer, p. 119, The Great Flood).

Frazer relates another legend similar to this, recorded in the Zend Avesta. As in the Assyrian account, population seems to be the problem that is worrying the Creator. In the Persian legend, in the beginning there was neither disease nor death, but soon men and animals increased to such an alarming extent that the deity decided to send winter and frost and all those who were unprotected would perish. Yima was warned and provided a refuge for his family, where children were only allowed to be born every fortieth year to both men and cattle. (Ibid, p. 182).

It was Malthus' essay on Population that gave Darwin his clue to the Origin of Species. "There is no exception to the rule," he states, "that every organic being naturally increases at so high a rate, that, if not destroyed, the earth would soon be covered by the progeny of a single pair. Even slow-breeding man has been doubled in twenty-five years, and at this rate in a few thousand years, there would literally not be standing room for his progeny." (Chap. 3, p. 59, Origin of Species, Darwin).

"There were giants on the earth in those days, mighty men which were of old men of renown." From an examination of the records it would appear that it was the giants in every country who became the builders and architects of those cyclo-

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pean structures, which even to-day are the wonders of the world. In the Guild-Hall in London are two gigantic figures, Gog and Magog, which tradition asserts were the original founders of the Island before the Britons came.

In a legend of South America we learn of men of gigantic stature who possessed the land when it was in obscurity and darkness. They decided to seek the sun, and it was they who built the tower of Cholula, which was supposed to reach the sky; but they were confounded and had to desist, in the same manner as related in the book of Genesis.

The statues found by Cook on Easter Island also bear witness to the giants, some of them measuring 27 feet high and 8 feet across the shoulders. These, so Madam Blavatsky states, were the Third Race or Atlanteans, who were supposed to be giants. But after the flood, their stature was decreased, and their years shortened. (Secret Doctrine, p. 331).

Darwin had never heard of these records, yet with the evidence before him, he came to the same conclusion, i.e., that catastrophes were checks upon population. Speaking of the widespread evidence of the exterminations of man and animals, he says: "It appears from the character of the fossils in Europe, Asia, Australia, and North and South America, that those conditions which favor the life of the larger quadrupeds were lately co-extensive with the world: what those conditions were, no one has yet even conjectured. It could hardly have been a change of temperature which at about the same time destroyed the inhabitants of tropical, temperate, and arctic latitudes on both sides of the globe. In North America, we positively know from Mr. Lyell, that the large quadrupeds lived subsequently to that period, when boulders were brought into latitudes at which icebergs now never arrive. Did man, after his first inroad into South America, destroy as had been suggested, the unwieldly megatherium, and the other Edentata? We must look at least to some other cause for the destruction of many mice and other small quadrupeds in Brazil. No one will imagine that a drought, even far more severe than those which cause such losses in the province of La Planta could destroy every individual of every species from Southern Patagonia to Behring's Strait."

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"Nevertheless," he concludes, "if we consider the subject under another point of view it will appear less perplexing. We do not steadily bear in mind how profoundly ignorant we are of the condition of existence of every animal; nor do we always remember, that some check is constantly preventing the too rapid increase of every organized being, left in a state of nature. Every animal in a state of nature regularly breeds; yet in a species long established any great increase in numbers is obviously impossible, and must be checked by some means." He goes on to show how seldom we can tell what is the precise nature of check, nor the manner of its action. All he is sure of is that it works. (The Voyage of the Beagle, pp. 189-90).

Keeping this fact of organic increase in mind, it becomes less difficult to understand the causes of the various catastrophes, but apparently at the time of the last deluge, another agent had been devised by means of which it has been kept in check. Hence we have old age and death.

Without any facts before him, Darwin refused to speculate, but here by means of analogy, it may be possible to locate an Ariadne's thread that shall lead us out of the darkness. My purpose now is to compare these legends, and to inquire what conclusions we may profitably deduce from the comparison.

THE ASSOCIATION OF CONFLAGRATIONS AND DELUGES: In the Biblical account of the Deluge, critics detect two distinct narratives artificially combined. One is derived from what they call the priestly document; the other from the Jehovistic document. Both are agreed to be historical, but whereas the Jehovistic writer puts down for the cause of the flood, rain only (Gen. vii, 12), the priestly writer speaks of subterranean waters bursting forth, and the windows of heaven being opened. (Gen. vii, 11; viii, 2).

Other legends give the cause of the bursting forth of the waters beneath the earth, and if we may trust the evidence of an obscure scholastic, Rev. A. E. Hislop, it becomes apparent that destruction by fire preceded destruction by water. In the Druidic mythology "the bards affirm that the dreadful tempest of fire that split the earth, was rapidly succeeded by the bursting of Lake Llion, when the waters of the abyss poured forth and overwhelmed the world." (Davies, Druids, p. 555).

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The same story is related by Diodorus Sicilus. He tells us that in former times "a monster called Aegides, who vomited flames appeared in Phrygia; thence spreading along Mount Taurus, burnt all the woods as far as India. . . . The Phrygians remembered well this fire, and the flood which followed it." (Diodorus, lib. 111, p. 142).

The Mexican story relates that the world was first destroyed by fire, then by water. (Humbold't Researches, Vol. II, pp. 21, 23). In both the Indian and Babylonian systems the Deluge is represented as coming after the god of fire. (Quoted from The Two Babylons, A. Hislop, p. 243).

One of the South American legends given by Frazer, relates that once upon a time people heard a rumbling above and below, then later they heard a roar and saw darkness descending, accompanied by heavy rain. The waters rose till they covered the earth, and everything was in darkness. (Story of the Flood, Folk Lore in the Old Testament, p. 261, Vol. I). Another Indian tribe near the Amazon relates that a great cloud fell from heaven and covered the earth with water. (Ibid, p. 261).

Referring to the Deluge, the Popul Vuh, the sacred book of Central America, says: The face of the earth was obscured and a heavy darkening rain commenced. Then was heard a great noise above their heads. as if produced by fire. There were men seen running and pushing each other, filled with despair. Water and fire contributed to the universal ruin which preceded the fourth creation. (Atlantis, 1. Donnelly, p. 102).

In the Babylonian story it states: "When the early dawn appeared there came up from the horizon a black cloud. Ramman thundered in the midst thereof. . . . Irragal tore away the ship's post. There went Ninib, and he made the storm to burst. The Anunnaki lifted up flaming torches, with the brightness thereof they lit the earth. (p. 115, Frazer's Story of the Flood. Folk Lore, etc.).

Fire and water thus seem to have contributed to the destruction of mankind; and while many theories have been advanced to account for the deluge, earthquake, torrential rains, and inundations from the sea, none of them could be conceived as so altering the environment as to shorten the years of man's

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life; therefore it seems to me that the cause must have come from elsewhere.

Meteorites to the number of millions fall every day on the earth, while the surface of the moon shows huge craters from the same cause. One of these, a small moon perhaps, may have caused the flood, at the same time burning up the combustible gases in the atmosphere, and causing a tidal bore that would cover the earth. When the water subsided there would be a surplus of carbon dioxide, besides smoke and other poisonous gases. It may have been to get away from this condition that the people began to build towers.

ATMOSPHERIC CHANGES AT LOW ALTITUDES THE CAUSE OF DEGENERATION: Changes in the organism due to changes in the environment are too well known to dwell upon. I will give only a single instance, which though a simple one will demonstrate my point. It is related by Darwin in his Descent of Man, and refers to the Quechqu Indians, who inhabit the lofty plateaus of Peru, at an altitude of 10,000 to 15,000 feet. They have acquired lungs of enormous dimensions, with a larger and more numerous lung cells than Europeans. When they were carried down by the Spaniards to the lower levels, they suffered "a frightful rate of mortality." And when they eventually became acclimated their bodies became elongated, while their limbs became shortened. (Descent of Man, p. 34-35, Darwin).

The reason for this lung expansion at great altitudes becomes plain in the report of the Anglo-American Pike's Peak expedition. Their experiments showed that the lung ventilation required to be about 2¼ times as great for a given elimination of CO_2. The conclusions of the expedition were summed up thus: "The observations detailed leave no shadow of doubt that a very marked process of adaptation to high altitudes occurs. Our experiments disclosed three definite adaptive changes. These were: A rise in the arterial oxygen pressure. 2. An increase in the percentage and total amount of the hemoglobin in the blood. 3. A fall in the alveolar CO_2 pressure and corresponding rise in oxygen pressure." (Phil. Trav. Report of Pike's Peak x. p. Vol. 203, Series B. 1913).

"After acclimatization the resting arterial oxygen pressure

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had risen to about 35 mm. of mercury above the alveolar oxygen pressure: whereas at or near sea level the resting arterial oxygen pressure is no higher than the alveolar pressure."

Although there was less oxygen in the air in Pike's Peak, yet the arterial blood contains considerably more oxygen than at sea level. (Miss M. Fitzgerald, Report of Pike's Peak. Series B, Vol. 203, 1913).

Another interesting factor noted was the influence of high altitude on the level of the diaphragm. It occupies a lower level in natives than in whites, thus allowing for deeper ventilation and lung expansion. Chest measurements of natives were larger by 20 per cent area; of trunk 20% larger than average European of similar trunk. (Phil. Trans. Serial B., Vol. 211, 1921-23, Observation upon the Effect of High Altitude on the Physiology of the Human Body. Note on skiagraphs of the Thorax, Sir Arthur Keith, same report).

The body normally contains an enormously greater quantity of carbon dioxide than of oxygen. In the blood there are from 40-45 volumes per cent of dissociable CO_2, and Yandell Henderson states that it is probable that the human body contains at least half of its own volume of CO_2 dissolved in the humors and combined in the tissues in dissociable form. (Acapnia and Shock, A. J. Phys. xxv-191-313).

At high altitudes the CO_2 is shaken out of the blood, and the whole mechanism of respiration "speeded up." (The Respiratory Function of the Blood, Barcroft, pp. 260, 278).

The air is lighter, the body is buoyed up and the whole organism benefited. This benefit is no intangible affair, but a very definite change in the blood of the individual. (Respiratory Function of the Blood, Barcroft, pp. 261-265).

The accumulation of CO_2 in the cells decreases the rate of metabolism. Waste products accumulate, and unless they are eliminated the body gradually becomes more and more solid. The membrane of the cells becomes impermeable to CO_2, consequently it accumulates in the cell, and decreases its rate of metabolism. Cell secretion, cell respiration and cell nutrition are but different manifestations of molecular activity in the process of oxidation.

Within wide limits, however, the oxidation process is prac-

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tically independent of the supply of oxygen, for of the 20% in the inspired air only 4% is used. The amount of oxygen in the air breathed may be greatly increased, without increasing the consumption of oxygen per unit of body weight, the great factor that seems to control breathing, and incidentally oxidation is the saturation of the blood with CO_2.

The average amount of CO_2 in venous blood in the lungs is 45%. In arterial blood it is 38%. There is only a second or two for the respiratory exchange when the blood gives up the CO_2 and gains the O, and it is here interesting to note that birds whose exchange is most rapid and efficient, live longest. (Principles of Human Physiology, Starling, p. 1124); Text Book of Anatomy and Physiology, Kimber and Gray, p. 315).

It must here become apparent how important is the air we breathe, and the study of the tensions of the gases it contains. Their physiological relations to the gases in the blood are to-day the subject of intensive study, but the great factor of senescence is still unsolved.

If we can place any credence on the records of antiquity, and I see no reason for rejecting them, then the cause of old age must be sought elsewhere than in the body. Let us examine our environment.

The idea of a slow deterioration of the climate due to increasing desiccation is of old lineage. Aristotle believed that a gradual rarefaction of the earth took place, while Ellsworth Huntington, in our own time has brought forward a theory which endeavors to show a rapid drying up clearly traceable throughout historic time.

Dry air has a very irritating effect upon the body, for because of its great absorbing power, it will take up moisture from the skin and mucous membranes of the respiratory tract, especially where the humidity falls below thirty or forty per cent.

Professor McAdie draws attention to the relatively small amount of water vapor in the air: 1.2 per cent of the total gas at the surface. It decreases with every increase of elevation to an imperceptible amount at or below the level of 10 kilometers. (Principles of Aerography, p. 22).

Water vapor is the lightest of all the gases, and at a given

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temperature and pressure weighs less than two thirds as much as the same volume of dry air: hence air heavily charged with moisture is relatively lighter than dry air.

Saturated air has a special influence in absorbing radiant energy, whether from the sun or the earth, and if our atmosphere is drying up, then these radiations are forever lost to us. As old age advances the water content of the body decreases and, from data compiled concerning the change in the water content in man and the higher animals, the age may be approximately determined. It has been stated that it affords the best index of the age of the white rat. (Senescence and Rejuvenescence, Child. p. 283).

"It is an undoubted fact," says Professor Child, "that after a certain stage the body becomes more and more solid as the structural substances accumulate. The decreasing water content is in fact probably to some extent merely another aspect of the presence of structural accumulations in the cells. . . ." (p. 283).

Laurent who went to California to study the centenarians and their environment, concluded that longevity there was due to the climate, i.e., the purity of the air, which he attributes to the fact that there were no manufactures in the State, while the sun, the ocean, and the vegetation were continually purifying the air.

Metchnikoff states that in 1896 he found 5000 centenarians in the Balkan peninsula, a highly mountainous country, and M. Chemin, who compiled all the old and new records of centenarians up to the end of the 19th century, and whose statistics Metchnikoff used, concludes by saying that it is without doubt, the pure keen air of the Balkans and the agricultural life of the people which predisposes to old age. (Prolongation of Life, Metchnikoff, p. 88).

Some time ago tests were made in England to discover the main source of the pollution of the atmosphere. It was traced to the ordinary coal chimney. It has been computed from measurements made near Leeds in England, that there are annually introduced into the air near that city 35,000,000 kilograms of soot. Fry, of Cincinnati, collected dust, filtered and weighed

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it, and found the total for the year to be 2,962 tons per square mile, largely derived from coal smoke. (Quoted from McAdie's Principles of Aerography, p. 156).

When we consider that there are 700 million alveoli in the lungs, and about 2000 square feet of surface exposed to the air, we begin to understand why the ancients built towers in cities. A new born baby's lungs are shell pink; a city dweller's slatey grey, and a coal miner's black. This is the coated wall through which the gases have to pass.

Nimrod, the son of Cush who founded Nineveh, was long worshipped as The Elevator of the Heavens. A Polynesian tradition graphically describes the condition of mankind immediately after the flood. According to this legend of the South Seas, the "heavens were originally so close to the earth, that man could not walk, but was compelled to crawl under them. This was found a very serious evil until an individual conceived the idea of lifting them to a more convenient height. For this he was deified, and up to the time of Christianity was worshipped as the Elevator of the Heavens." (The Two Babylons, A. Hislop, pp. 52-53).

This was the idea behind tower building, which was apparently for the purpose of getting away from the lower levels of the atmosphere where death dwelt.

But what we need to-day is not an elevator of the heavens but an elevator of mankind. In Genesis it is stated that the Creator would not always strive against man, and in many of the Messianic prophecies, the Kingdom of Christ was to be built in a high place. In the 71st Psalm, which is a description of the Messianic age we read: "And there shall be a firmament on earth on the tops of mountains, above Libanus shall the fruit there of be exalted, and they of that city shall flourish like the grass of the field." (Verse 16).

Isaias also confirms this prophecy: "In the last days the mountain of the house of the Lord shall be prepared on the tops of mountains, and it shall be exalted above the hills." (2). On the mountain tops are those invisible ultra violet rays so beneficial to health, and which are strained out of the lower levels by dust, fogs and smoke.

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If, as Barcroft has stated, living at an altitude is beneficial to the organism, even thought it is working under strain of oxygen want, how much more beneficial it would be, if we were to build our dwellings on lofty plateaus and lay on oxygen and moisture as we now do heat and light.

At sea level the arterial and alveolar oxygen pressure are practically identical, but on Pike's Peak the arterial oxygen pressure had risen to about 35 mm of mercury above the alveolar oxygen pressure.

This difference was reduced to about a third by an increase in the percentage of oxygen in the air breathed, and in three experiments lasting from one-half to one hour, as Haldane observed, it was hardly to be expected that the difference should have been abolished completely. (Phys. Observations on Pike's Peak. Phil. Trans. Vol. 203, 1913, Series B.).

Barcroft states that the mechanism of adaptation to high altitudes is a "speeding up" of the whole process of respiration. The amount of blood leaving the lung increases perhaps twofold; the corpuscles with their loads of oxygen go to the tissues and through the capillaries at twice their former velocity. The diminution of the carbonic acid in the blood is reflected in the speed with which the oxygen is given off to the tissues. The circulation is quickened and the whole body benefits. (The Respiratory Function of the Blood, p. 278).

According to Child, an increase in the metabolic rate constitutes rejuvenescence, while a decrease is a symptom of senescence. (Rejuvenescence and Senescence, p. 183-186). "The idea that life proceeds only in one direction from youth to age and death, must be abandoned. Rejuvenescence is as an essential a feature of life as senescence. . . . Viewed in their dynamic aspects senescence and rejuvenescence are changes in the rate of metabolism." (pp. 186, 310).

Although the body at high altitudes, through the lack of oxygen and moisture, is working under difficulties, nevertheless, even thus handicapped, a certain degree of rejuvenescence occurs, not only in the amount of red cells increased, but in the re-arrangement of the leucocytes. Gerald B. Webb of Colorado Springs drew attention to the fact that an increase in the lym-

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phocytes, and a decrease in the polymorphonuclear cells caused the blood picture at an altitude to simulate that of childhood. (Phys. Observations made on Pike's Peak. Appendix 1. Series B., Vol., 203, 1913).

In summing up the points of life at high altitudes the chief benefits are: 1. A decrease in the carbon dioxide in the blood; 2. An increase in the haemoglobin and the number of red cells. 3. A general speeding up of the whole respiratory system. 4. An increase in the lung expansion, and a lowering of the diaphragm permitting of deep breathing.

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Organ-Neuroses and Their Treatment[1]

By SANDOR FERENCZI, M.D.

There are many illnesses which are mentally conditioned and yet which co-exist with actual disturbances in the normal activity of one or several organs. These are called organ-neuroses and must be distinguished from hysteria in that they are not alone concerned with subjective but also with objective disturbances. However, they are not to be sharply separated either from hysteria or from some organic illnesses. This is explainable not alone because of the inadequacy of our knowledge hitherto, but furthermore because organic disease is often accompanied by a neurosis of the same organ; also, hysterical symptoms often attach themselves to organ-neurotic, or organic ills, which then themselves become hysterically intensified.

The best-known organ-neurosis is the so-called "neurasthenia" which was first described by an American neurologist in the fortieth year of the 19th century, and which was traced back to shock which the then unaccustomed railway travel was alleged to cause the nervous system. Since then, the harmlessness of railway travel has been proven. The beautiful Grecian name of the illness, however, has been well-introduced to medicine and to the public, and still describes a number of different conditions, mental depressions, physical excitability and weakness, psychic and physical anxiety and compulsive symptoms. Psychoanalysis was the first to expose a large number of so-called clinical neurasthenic pictures as being purely psychic and as psychically curable. However, after the elimination of all the psychically explainable conditions, a type of illness remained which we even today still designate as neurasthenia. Neurasthenics fatigue very easily, both physically and mentally, their attention is lessened, their sensitiveness to external excitement increased; they suffer from headaches and indigestion. In a man potency is disturbed, often with premature ejaculation and with pollutions, to which is

[1] Reprinted through the courtesy of the Hippokrates-Verlag, Stuttgart-Berlin, from *Das Psychoanalytische Volksbuch*, edited by PAUL FEDERN and HEINRICH MENG, 1926. The editor is indebted to MRS. MARGARET J. POWERS, New York, for the translation.

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often added unpleasant or even painful dragging in the back (formerly described as spinal irritation). Yet there is no organic disease, especially no spinal disease, present, nor is any to be feared.

The causes of this neurasthenic condition are certain mistakes in sexual hygiene. A tremendous number of alarming opinions have been spread concerning self-satisfaction (masturbation), that is, the arousing of sexual pleasure through practise upon one's own body, mostly rubbing of the genitals, accompanied by voluptuous phantasies. Even the Bible pronounced judgment against it as a deadly sin, and a century ago one sought to explain spinal consumption as an aberration of youth in consequence of self-satisfaction. This superstition is still not entirely eradicated. In reality, self-satisfaction is a normal step in the development of every person. Only those who cling too long and too tenaciously to this stage, continuing masturbation in many cases compulsively long beyond the time of sexual maturity, sometimes develop neurasthenia. Even in such cases neurasthenia, however, is not caused solely by the bodily process of masturbation but mostly through mental processes of compulsion and feelings of guilt.

Before one is declared neurasthenic, or nervously ill, it is well to secure the advice of a psychoanalytically trained physician, who is often successful in allaying a large part of the symptoms through information as to the cause and quieting the burdened conscience. If this is insufficient then a regular psycho-therapeutic treatment should be resorted to in order to remove the obstacles which stand in the way of a normal sexual development. In almost every case, improvement will be achieved by giving up the immature method of satisfaction. The essentials of true neurasthenia are then to be summarized thus, that it is almost always rooted in the sexuality, and is psychically and sexual-hygienically curable. Many cases of serious neurasthenia would be cured of themselves through sympathetic understanding, even without medical interference.

A second illness is the so-termed "Anxiety-neurosis." This also unites physical and mental symptoms: entirely unwarranted or insufficiently warranted general anxiety, continuous

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anxious expectations, fears of accidents, pessimistic concern over quite insignificant symptoms of illness in oneself or others, etc. Attacks of anxiety with trembling, sweating, increased heart-beating, Alp-dreams, and oppression, evacuations, and pressure of urine, etc. Just as with neurasthenia, the anxiety symptoms may appear as accompanying an unnoticed but real illness of an organ, for example the nose, the respiratory organs or the heart. The anxiety symptoms, however, may be only a partial appearance of an anxiety hysteria. In order to distinguish them, a careful physical as well as a psychoanalytical examination is necessary. If these do not yield anything suspicious then one must again turn one's attention to an observation of the sexual health of the patient. This very often shows that patients suffering from anxiety, practise sexual intercourse but in an unhealthy manner. They seek to avoid pregnancy by an interruption of the sexual act before ejaculation, or they intentionally prolong the act, or they excite themselves with voluptuous activity which they do not permit to come to any actual satisfaction.

As a rule a corresponding change in sexual hygiene brings about a disappearance of the often difficult and grave malady within a short time, sometimes within a few weeks. Where this does not result, the case is one of a combination of organic and neurotic illnesses, both of which must be treated by a doctor.

An unpopular but by no means rare situation is that of a husband, a neurasthenic suffering from premature ejaculation who is married to a woman inclined to anxiety and sexual frigidity. It costs the physician much pain to bring about the harmony of the sexual act which is so important for marital happiness. Here harmful economic and social factors contribute, among them the marked difference in the sexual life of both sexes before marriage; the removal of this difference can be regarded as a most important task of hygiene, but it is not to be concealed that again new and serious obstacles stand in the way.

There are a number of so-called "symptom-neuroses" which can be designated as organ neuroses. The best known example

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of this form of illness is the so-called nervous asthma: recurring attacks of difficult breathing, mostly accompanied by anxiety, with clear signs of a spasmodic contraction of the bronchial muscles. Following the attack, a stringy mucus is coughed up. But more prevalent than these illnesses are neurotic disturbances of the digestive organs. In the so-called "stomach neurosis" ordinarily either too much or too little acid is secreted. Very frequent is "nervous bowel disturbance" which, without any organic change, shows itself in diarrhoea, constipation, muccous secretion, cramps, flatulence, and even in one or several of these symptoms. In the very frequent cases of "neurosis of the heart," the strength and rhythm of the heart beats are disturbed without any demonstrable organic heart disturbance: the patient has very painful sensations which make him believe he has heart disease.

Science has only recently learned to believe in the possibility of organ neuroses, namely since Freud brought it to notice that erotic activity was also deserving of scientific investigation. It is no longer to be doubted, that not only the sexual and sensory organs serve pleasurable ends, but that also all of our organs outside their capacities in the service of self-preservation contribute with a part of their activity toward pleasure, a sort of organ-pleasure, which can almost be regarded as a sort of playful self-satisfaction of the organ and its own activity. In childhood a playful delight in organ activity of all sorts is plainly to be seen and is known to the child himself; with adults it is demonstrable through traces which remain. That which must be called "healthy physical enjoyment" is closely connected with the feeling of pleasure which the healthy functioning of the organ gives. To this enjoyment belongs, for example, pleasure in eating, which does not only lie in stilling one's hunger but also in the good taste of the food. Most people have more or less pleasure in chewing, swallowing, or gulping, and the majority in the further digestive organs. With many individuals this organ pleasure is especially, and often pathologically increased. They cannot repress the stimulus to swallow, or the pleasure of gulping, or of retaining the stool. (In the German word for "stimulus,"

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"Reiz," pleasure which attaches to the pathological occurrence is already expressed).

Analytical investigations have demonstrated that in these organ neuroses playful childish or erotic activities of an organ can take precedence and even impair its real useful functioning. This ordinarily happens when the normal sexuality is disturbed through psychic causes. Here also the way to recovery is given through psychotherapy, and also it explains why this disease is so obstinate, without endangering life.

It will be well here to introduce a few organ-neuroses. It is still doubtful if migraine is to be classed with them. There are, certainly, organ-neurotic forms of headache. After careful exclusion of organic causes, the tendency to fainting is, in many cases to be regarded as a neurotic disturbance of the vascular nerves. Especial sensitiveness to nervous shock in railway travel and the closely related tendency to sea-sickness have neurotic roots. Finally, we should like to point out that the processes of purely organic disease may leave behind organ neurotic disturbance after their recovery. Cases where blinking sets in after catarrh of the eyes, which continues as a "tic" long after the cure of the malady and even becomes established as a lasting habit, are well known. Similar are cases of nervous coughing which children often continue for years after recovering from whooping-cough. The customary grimaces and other convulsive movements which are known under the name of "tics" are probably all organ neurotic disturbances of function. Bordering between psychic and organic neuroses are also occasionally recurring local and general nervous symptoms which follow operations; the mental shock which endangering of life brings with it, and the condition of excitement which the organ in question has suffered through operative interference bear equal share in their causation.

Mental impressions also influence the course of every organic illness in a favorable or unfavorable way. Good news raises the strength of the patient, bad news diminishes it. Not infrequently a favorable turn in the patient's frame of mind arrests a chronic illness, which up to that time was constantly growing worse. The influence of such experience with fever

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patients is to be read from the fever curve. The increase of symptoms and pains under the influence of anxious expectations is known; on the other hand their decrease often comes with the appearance of the doctor, like the cessation of toothache in the dentist's waiting room. For this reason organic diseases are often successfully cured through mental influences rather than through medicine and sanitariums; even through quite unscientific superstitious practises. The conditions presumed for efficacy of the practise lies in the faith, or suggestibility of the patient.

The penetration into previously unrecognized depths in the instinctual life of mankind in which body and soul are constantly influencing each other, was first successfully introduced by the psychoanalytic investigations of Freud. Psycho-analysis finally leads the suggestibility back to the ineradicable influence which the relationship between child and parents leaves in every person. The omnipotence which many a doctor wields over the mental and physical powers of his patients is a repetition of the omnipotence of parents over children, and here, just as there, the motives to super-normal obedience are love and fear. Analysis calls such repetition *"transference,"* and it teaches how to bring this about with the patient, and to evaluate and use it toward cure.

The greatest success of *transference* to the doctor is shown in cases of psychogenetic neuroses, yet, very promising attempts have also been made in treatment, by psychic influences, of organic disturbances. Analytical therapy of organic diseases has the advantage over all previous attempts of this kind, in that the occult is foreign to it, and in that it constantly remains in close contact with psychology and with biology.

Even today psychoanalysis has been successful in the organic field with cases of heart and lung diseases. The alleviation of heart activity under the influence of *transference,* and after the uncovering of repressed psychical lesion is also able to conquer an already dangerous disturbance of balance in circulation in serious heart diseases. The psychical susceptibility of incipient tuberculosis of the lungs is so plain that every sanitarium should employ well trained psycho-

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analysts. If physical illness is cured through psychoanalysis by restoration of emotional harmony, especially in the sexual sphere, then we must assume that reintegration draws its strength from out of the spring of sexual energy, as if self-preservation in times of great danger (illness) were forced to borrow from the energy of species-preservation.

Further development of the psychoanalytic method of treatment for organic illness is a matter for the future: it is, indeed, capable of being combined with other forms of medical treatment.

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The Effects of Sugar in Recovering Mental and Motor Control after Brief Periods of Exercise[1]

Preliminary Investigation

By DONALD A. LAIRD, PH.D., SC.D.

Although carbohydrates, and especially common sugar, have been generally considered to be "ready sources of energy" there have been practically no specific experimental measurements made of their effectiveness in helping regain mental and motor control after exercise. It is generally understood that many athletic teams are given sugar either before or during contests but no scientific reports of gain or loss have been forthcoming from athletic records.

Krogh and Lindhard reported in 1920 greater physiological efficiency from a carbohydrate diet than from a diet composed primarily of fats.[2] Sevringhaus, et al, in 1927 repeated these experiments with some variations in technique and did not confirm the findings of the earlier investigators.[3] The principal interest of these two groups of independent investigators was the ratio between bodily energy expended and foot-pounds of work done; the amount of objective work done was only of secondary interest and was not reported by some of them. They were interested in finding out the physiological cost per unit of work rather than how much work can be done under the influence of the different diets.

Holck reported in 1929 a five year experiment on fletcherization as related, among other things, to performance in a selected list of mental and motor tests, but did not obtain especially striking results.[4]

This report deals with how much work can be done. The accuracy and speed of performance in standard tests was obtained from healthy young men who had been especially trained

[1] Copyright, 1930, by Dr. Donald A. Laird.

[2] Krogh and Lindhard: Relative Value of Fat and Carbohydrate as Sources of Muscular Energy: Biochem. J., Vol. 14, 1920.

[3] Reynolds, Sevringhaus and Stark: Human Energy Metabolism. Amer. J. Physiol., Vol. 80, 1927.

[4] Holck: Diet and Efficiency. Univ. of Chicago Monographs in Medicine. 1929.

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in the tests. Twelve subjects were used, divided into two squads. Squad A, of six young men, was tested six days; the first three days they were given 2.3 ounces of sugar in solution with lemon flavoring forty minutes before exercise, the last three days they were given a sugarless solution flavored with lemon which tasted the same. The other six subjects constituted Squad B and were given only the sugarless solution and served only the first three days of the experiment.

Due to this arrangement of experimental squads there are two ways in which we can estimate the "recovery value" of ordinary sugar preceeding exercise. First, the performance of Squad A which had sugar the first three days can be compared with the performance of Squad B which did not have sugar on the corresponding days. Second, we can compare the performance of Squad A during the first half of the test, when sugar was used, with its performance the last three days, when no sugar was used; some slight gain should be expected in the last three days due to practice in the various tests so in presenting the results without adjustments for practice we have followed the good scientific procedure of penalizing our data.

Forty minutes were required for each subject to take the tests. The subjects reported to the laboratory at ten minute intervals beginning at 2.10 P.M. Immediately on arriving each subject was given his solution to drink; none of the subjects or technicians in the experiments knew what the solutions were from day to day, with the exception of Hilda Drexel and the present reporter who were not connected in any way with giving the tests. Following the ingestion of the solution the subjects went through the series of measurements to be described shortly.

After the series of tests were completed—forty minutes after reporting to the laboratory—the subjects climbed three flights of stairs in the laboratory building and took the entire series of tests again. We thus had data to make critical comparisons of the gain or loss in tests performed following exercise with and without the benefits, if any, from the ingestion of sugar forty minutes prior to the exercise.

Reaction Time: This was measured in thousandths of

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seconds, using a Marietta chronoscope which was constantly checked by a stroboscope operated by an electrically driven tuning fork. The response was made by lifting the index finger when an electric bulb flashed. The technician in charge of this experiment was Robert F. Stanley.

During the first period of three days the squad having the sugar had a gain in speed of 3.7 per cent, while the sugarless squad had a loss of 2.1 per cent when the tests before exercise are compared with the tests after exercise. Squad A, which had tests both with sugar and without sugar, had a gain of 3.7 per cent following exercise when sugar had been ingested, but a loss in speed of 5.2 per cent during the last three days when no sugar was ingested; this loss in speed occurred in spite of the fact that they should have had added benefits from practice in the second three days.

These data would seem to indicate definite recovery value in increasing speed of reaction to this visual stimulus from the ingestion of sugar.

Body Spray: This was measured with an ataxiagraph in charge of E. Lawrence Smith. The subjects stood in a modified Romberg position, wearing an adjustable helmet which recorded body sway in the median plane during one minute, on a sheet of paper placed above the helmet.

Following exercise the sugar squad, A, had their sway reduced 9.4 per cent while the sugarless squad had an increase in their sway of 13.1 per cent. Comparing Squad A for its sugar and sugarless days, we find an improvement of 9.4 per cent on the sugar days while they were 2 per cent worse following exercise on their sugarless days.

The complicated co-ordination this measures is apparently benefited when sugar is used as in this experiment.

Tracing-Board: The standard tracing-board test was administered by Walter King and Arnold Sanborn.

Following exercise the squad which had taken sugar showed an improvement of 4.2 per cent while the sugarless squad had no change in this test. While on its sugar days Squad A had an improvement of 4.2 per cent, there was an improvement of only 2.1 per cent on its sugarless days.

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This type of motor control also appears to benefit under the conditions in which sugar was used in the experiment.

"Lag of Attention": The Marietta complication clock was used by Walter M. Lillie for this measurement. Following exercise the sugar squad showed 5.5 per cent improvement while the sugarless squad showed a loss of 9.4 per cent. During their sugarless period Squad A showed only slight deterioration from its performance during the sugar days.

We are now more strictly in the field of so-called mental functions and although the recovery value of sugar is still plainly evident it is not as marked as in the preceding tests which were more of a psycho-motor nature.

The benefit of the ingestion of sugar in this function is likely due to facilitating the muscular adjustments essential in attending.

Addition: A Woodworth and Wells addition test in which the subject calls as rapidly as possible the answers to successive additions in a single column of figures was given by F. K. Berrien. Following exercise the sugar squad had a gain in speed of adding of 7.2 per cent while the sugarless squad had a somewhat smaller gain of 6.9 per cent. Squad A, when sugarless, had slightly less gain than when on sugar.

This mental function also gives indications of benefiting when sugar is used before physical exercise.

These preliminary results which have given rather definite indications that practical performance will benefit when sugar is ingested preceding exercise, have been obtained under the theoretical handicap that somewhat around two hours time is required for sugars to leave the stomach completely. These results bear out the unpublished findings of Dr. Thaddeus L. Bolton obtained from office workers in 1929. The experiments will be extended to determine the optimum time relationship between the intake of large amounts of ordinary sugar and exercise, as well as the optimum amounts of sugar to be taken in relation to the amount of exercise or work.

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Comments on the Symposium on the Medical Profession

THE OPENING FEATURE OF THE YEAR'S MEDICAL REVIEW OF REVIEWS (1917) WAS THE LAYMAN'S SYMPOSIUM ON THE MEDICAL PROFESSION, WHICH APPEARED IN JANUARY. IN THE JULY NUMBER WE PRINTED SEVERAL COLUMNS OF REFLECTIONS ON THE SYMPOSIUM, FROM THE PEN OF WILLIAM DEAN HOWELLS. IN THIS ISSUE (OCTOBER) WE AGAIN RETURN TO THE SYMPOSIUM, PRESENTING THE REACTION OF PHYSICIANS TO THE VIEWS EXPRESSED BY THE LAYMEN. [THIS SYMPOSIUM WAS REPRINTED IN THIS YEAR'S MEDICAL REVIEW OF REVIEWS (JANUARY 1930); THE REFLECTIONS BY HOWELLS IN THE FEBRUARY ISSUE, AND THE COMMENTS BY PHYSICIANS APPEAR BELOW. ALAS! SO MANY ARE NO LONGER WITH US].

WILLIAM C. BRAISTED, Surgeon-General of the United States Navy, president of the Military Surgeons of the United States, and president of the National Board of Medical Examiners, was attending physician to the White House during the Roosevelt administration. Dr. Braisted writes:

The medical profession at large cannot fail to benefit by honest, intelligent criticism, which, however adverse, is in the nature of a friendly act, just as many an individual doctor has been guided and helped by timely suggestions from wise and devoted patients. Discriminating advice inspires only gratitude in return.

Unfortunately, medicine has its limitations and uncertainties, and human nature is a strange compound of good and bad, of virtue and flaws and frailties. Hence, it is not the ignorant and unscrupulous practitioner only, but also the physician of attainments and integrity who often fails to justify the expectations of his patients. Doctor and patient are made of the same common clay, and so, for every unprincipled, arrogant, lying doctor, there are many patients to whom these adjectives might be applied if the doctor chose to speak.

But the doctor is a servant and cannot talk back. To criticise his patients is to lose them. It is this inability to offer a *quid pro quo* that sometimes makes the frivolous, flippant flings, the sneers and slurs at doctors, a little hard to endure. The

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doctor must listen and seem to enjoy complaints and jokes about big fees, neglected patients, operations that kill, but should he name the prominent people in his town who never pay their bills, who do not follow directions, who, on the advice of friends and relatives, surreptitiously modify treatment for which he is held responsible, who lie about their symptoms and conceal vital facts, he would be discredited at once, branded as a malicious gossip unworthy of confidence.

People ask of a lawyer that he shall plead well; of an artist, good pictures; of an architect, houses that will not tumble down; but the private morals of these workmen, their manners, their neckties, their whiskers, are of no moment. It matters not whether they go to their labors in a stylish coupé or on foot, whether they are warm hearted and jolly or cold and aloof. How different, how peculiar is the relation of patient and physician. It is unlike any other relationship on earth and always will be. We may know that a man is learned and able, and yet not want to bare our bodies or our hearts before him if we do not like him. No endowing of colleges, no restrictions of law, no high standards of qualifications, can ever control popular choice. The flashy advertising doctor will always appeal to some. There will always be empty headed people who prefer the fashionable society doctor, the sleek, ingratiating grafter, to the blunt, honest, outspoken scientist of unsympathetic bearing. The public will always choose—and none know better than the doctors how fallacious are the grounds of its choice. It will never be feasible for the authorities to impose certain doctors, known to be capable, on the public, because the best of men are liable to error, and then the public would have a double grievance.

What the profession can do and is even now trying to do, is to raise the standard of required attainments, to compel all who practice to show a reasonable competence, to see that no one shall pass himself off as a surgeon who does not know surgery, that no one shall claim to be an expert on the eye because he possesses a few thumb rules for fitting glasses. It should be possible for a man taken suddenly ill in a strange city to seek medical aid without danger of falling into the clutches of a sharper.

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But in all this the public must help. Servants have a way of wanting to please their masters, and "like master, like man." I venture to say that an infinitely small proportion of the young men who graduate from our medical schools enter on their profession without worthy ambitions, high ideals and convictions of duty. If later many of them stoop to meretricious practices, rely on a grand air, a finished bedside manner, and bluff, it is because so many patients prefer these things to genuine but unadorned skill, prefer a prescription to suggested reforms in habits of food and drink and apparel and in the details of daily life.

Even the least experienced young doctor knows so many things that would benefit the people if only they could be persuaded to do them. But he preaches in vain, his missionary efforts are branded as self advertisement, and finally it is by the will of the public that he comes to prescribing drugs instead of sunlight and air and exercise. Perhaps he finds himself in a community where there is no power to compel the observance of the board of health's sanitary rulings. Back yards and alleys and garbage barrels and water supply and sewerage and drainage are neglected. The doctors who would initiate reforms are called arbitrary and visionary. Through jealousy they are denied even a fraction of the power cheerfully delegated to the cheapest political ward heeler. Then when the epidemic of typhoid appears and the doctors ply their trade and charge for many visits, they are cynically described as fattening on the afflictions of humanity.

If we could change things to our taste we would shake the public's faith in drugs and increase its faith in sanitary measures. We would make patients as reticent about the doctor's fee, his advice, his indiscretions of speech or manner, as the physician is about the patient's infirmities of body and heart and mind. We would convince the public that it is not always the hearty, positive, cockshure man who is right, and that the confidence he inspires is not always justified. On the other hand, we would make a plea for the physician in whom "the native hue of resolution is sicklied o'er with the pale cast of thought." We would make it clear to all—it is only a chosen

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few who know it already—that an occasional admission of ignorance or failure is evidence of integrity and sound judgment. It should be esteemed a proof of competence to balance probabilities, to hesitate among many trivial and misleading symptoms before selecting the one that tells the story and clinches the diagnosis. Finally, we would lay upon the heart and conscience of every physician this rule of life: The patient first. The patient before fame, before reputation, profit, honor, propriety, etiquette, popularity or public esteem—such a path can be followed blindly to the end.

NATHAN E. BRILL, Professor of Clinical Medicine in Columbia University, is the discoverer of that form of typhus fever known as Brill's disease. His pupil, Dr. Harry Plotz, discovered the typhus bacillus. Dr. Brill writes:

Much of the invective, irony, satire, and ridicule directed against physicians, which has appeared in the literatures of all countries at all times, seems to be the result of intrinsic causes which had their origin in part in the public mind, in part in the attitude of some of the members of the medical profession. The public in the past had assumed that the physician wielded powers second only to those of the Deity, as, for example, that the agents which he employed could make or mar; that they could control life and death; that the physician was in the possession of a mysterious knowledge whose utilization worked for good or evil as he desired. This attitude, induced, perhaps, by the fetish of the early physician, has never been totally eradicated, even though education and knowledge have been more widely disseminated. Many individuals today believe that the best physicians can *cure* the most of the ills which afflict the human body; that, on the other hand, if these ills be not dispelled by them, they are incompetent and unqualified to continue in their profession.

Fortunately, the medical profession has taken good means to dispel these ideas. It is constantly endeavoring to teach that with the exception of a few of the infectious diseases, whose etiologic factors are known, human agencies have little influence in controlling or modifying the pathological processes

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induced by disease. The public ought to know that when tissues are once destroyed, if they be not replaced by the natural reparative processes, no agents in the control of man at the present time can so restore them; it ought to know that if the functions of the various organs are disturbed or perverted by a destructive pathologic process, it is not in man's power to bring such functions back to their former integrity; it ought to know the influence and the power of the physician are limited by lack of knowledge of what constitutes life, and what is the nature of death; knowledge which can never be available to man. It ought to know that the physician's function is to serve as an aid to nature's restorative agencies; that is as far as he can be of use, after disease has once seized the individual. The medical profession has never made extravagant claims to the possession of powers which it never possessed; these have been put forth by charlatans, quacks, imposters, special schools of ignorant sects, and the like. But the science and art of medicine have accomplished wonderful results in the prevention of the development of disease, against whose assaults the whole energy of the medical profession has been enlisted. When the results of preventive medicine become more generally known, the public will recognize that the medical profession is composed of a useful body of men and it will appreciate the services of the physician. When, however, that time arrives, literature will lose some of its most delightful contributions to human amusement and entertainment.

HARLOW BROOKS, Professor of Clinical Medicine in the medical department of New York University, is visiting physician to the City Hospital and to the Montefiore Home. Dr. Brooks writes:

There is no one thing which more frequently cements the loyalty of the physician to his patient than loyalty on the part of the patient to the physician. The highly educated, seriously-minded and earnest physician resents being put in the class with the osteopath, the chiropractor, the Christian Scientist or any other form of faker. Those of the public who would class

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him with such in any way are quite likely to get from him such service as they deserve and no more. This is human nature.

A greater interest of the public in the Scientific Medical Institutions, a greater encouragement of learning and advance in the profession by the layman, particularly in the endowment of institutions and to a certain extent in remuneration of those who labor in them, would go far toward breaking down the narrow bridge which exists between the professional man and his client. In so far as the doctor is concerned nothing in the world so puts him upon his mettle as appreciation, not only of his service, but also of his spirit and intent.

WALTER B. CANNON, Professor of Physiology at Harvard University, is noted for his studies of the movements of the stomach and intestines in situ, and for his original work on the adrenal glands. Dr. Cannon writes:

The fact is obvious that the public is getting the sort of medical service that it is willing to put up with. So long as people acquiesce in the existence of low standard medical colleges, easy-going boards of medical examiners and the wide diffusion of advertisements of medical quacks and mountebanks, they are certain to continue to be doped, duped and fleeced. Too often members of the medical profession who show any signs of public spirit, who attempt to raise the standards of graduation and practice, or who expose the frauds of patent medicine vendors, are regarded suspiciously as slyly trying to promote their own interests. Witness the bitter remarks found in *Life* and other publications. The public should remember that just so long as it permits low standards to persist, poor service will be given.

GORDON K. DICKINSON has recently been discussing such topics as hospital management, standardized hospitals, the interne question, and the education of nurses. Concerning the symposium Dr. Dickinson writes:

In a study of people's thoughts when called upon to express their opinions of the different professions, particularly of the medical, and in a study of the average witticism in our maga-

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zines, it is too frequently noted that the medical profession is the butt for jibes, jokes and innuendo, though unlimited praise may often be given. It does seem medicine is as a toadstool in the field—a conspicuous object to be kicked. But man is only a man; and whether professional or lay, whether a doctor of one type or another, or active in business life, he may be one who has ten talents or one who has but few, for in the symposium recently published one cannot but perceive that among them there are those with few talents for the appreciation of conditions and their judgment.

Man does not change in business nor in professional life. The cylinders of Old Egypt tell the same story that is being told today of man as he is, but certainly professional life and the ideals of the profession are advancing. How rare it is for him who criticises to make a distinction between the individual and the profession activated.

Although theology tends to narrowness and intolerance and strains towards the emotional point, there are wonderfully broad humane theologians. Although the law pins the truth to exactness, there are lawyers who try to stretch the truth in the pleading of their cases. Medicine, that is, true medicine, is social service, yet there are those who enter it with the sole purpose of making a living, not to keep others alive.

The study of medicine as expressed at the bedside in the hospital or in the home develops character and all the graces, but it is not the scientific side which affects, rather the contact with poverty, pain and the mental and physical miseries of the home and individual, so that our holiest and sweetest personifications are found in those whose experiences have extended over many years. In no one of the professions and certainly in no one of the occupations is there such a wonderful development of noble character. Surely it seems as if the true physician, working for social service, in the love of his profession and in the love of the people, warming to the poor, comes nearest to the type of Christianity inculcated by Christ himself, and those who criticise should be careful to differentiate between those of varied ideals. They should ever keep before them the fact that the ranks of the medical profes-

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sions, as is the case in all professions and occupations, are made up of untutored youths who poorly know their minds when they start out, but become subject to the environment of the work they chose and influenced by the atmosphere which they daily breathe. There are quacks in medicine; there are shysters in law; there are backsliders in theology; but that, however, does not take from the nobility of the calling.

YANDELL HENDERSON, Professor of Physiology at Yale University, is part-author of Report of Pike's Peak Expedition, and author of Shock—or Pathological Physiology of some Modes of Death. Dr. Henderson writes:

It is an encouraging feature of the symposium that so many of the participants lay stress on the social aspects of medicine. While the personal relations of the physician and patient are no less important than in the old days, the new relations of the medical profession to public health, to health insurance, and to research receive a gratifying amount of appreciation in the views expressed by the distinguished laymen who have taken part in the symposium. At this time more than at any other for a generation past tremendous new problems are pressing upon us. Many of our old standpoints are shaken and new methods are seen to be necessary to meet new conditions. Many, perhaps the greater part of our social and even our political problems may be reduced ultimately to matters of health, and thus brought within the broad domain of medicine. For the solution of such problems the public health line of attack has the peculiar advantage that our courts are able to bring such solutions under the police power of the state and thus to free them from many of the legal and constitutional obstructions which oppose other methods of solution. This most important point seems to be more or less clearly appreciated by many of the participants in the symposium.

The feature of the medical situation of which the least grasp is shown is the fact, as President Eliot once expressed it, "that the vast majority of the ills to which flesh is heir can be overcome if we can only get the knowledge necessary to do it. The

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supreme duty of society today is to spend the money necessary to get that knowledge."

SAMUEL J. MELTZER, the head of the department of physiology and pharmacology at the Rockefeller Institute for Medical Research, has been president of the American Physiological Society, the Society for Biological Medicine, American Gastro-Enterological Association, the Association for the Advancement of Clinical Research, and the Harvey Society. Dr. Meltzer writes:

My personal interests are always centered in the patient and all that concerns him; public health is taken care of by the various governmental institutions, and is in many instances rather a menace to the unfortunate patient and his family.

I do not share the opinion that what we need is larger endowments by private individuals. We have in this country already twenty-six institutions for medical research endowed by private individuals. What we need is that the United States should take the necessary profound interest in medical research as well as in medical education. We are at the point to vote seven billions for war. If the United States had spent half a billion in the course of the last ten years on general education of the entire country and especially on medical education and medical research, it is possible we would not have had to spend now that astounding amount of money on such a destructive object as war. However, the question of war is now law, and I am and have always been and intend to be within the boundaries of law; I shall therefore not continue any discussion pertaining to it.

Altogether it seems to me that we are passing at present through too serious a time to waste our energies on such a question as to what the public thinks of the doctor. I hope that when we are through with the present war the public will have good reasons to think a good deal more of the doctor than they had after the Spanish-American War.

ALFRED MEYER, Clinical Professor of Medicine at New York University, is attending physician to the Mt. Sinai Hos-

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pital, consulting physician to the Montefiore Home, and director of the National Association for the Study and Prevention of Tuberculosis. Dr. Meyer writes:

A New York physician once said that success in the practice of medicine depended one quarter upon "savoir," and three quarters upon "savoir faire." In exceptional instances this cynicism might truthfully apply, but very few physicians would admit its truth for the profession at large.

On the whole, the criticism of your lay contributors appear juster than this. They indicate that the ranks contain men of all grades of professional qualification, and all the varied types of men that are found in other walks of life. They are simply parts of God's menagerie. They differ in character, speech, manner and judgment, as they do in physique, conscientiousness, truthfulness and sobriety—just as other people do. But there are many indications that the general standard of action is more unselfish, and the devotion to higher things in life more general than in most other human activities—whether industrial, commercial or professional—and a large majority of your lay contributors admit it.

And now an accusation. Admitting that you cannot easily change a physician's "savoir faire," I charge that he could be provided with more "savoir," if the curricula of the medical colleges included more bedside instruction for every student. In spite of improvement in this respect in recent years, it is a pity—shall I say a shame?—that the vast clinical material of New York's great hospitals is still insufficiently utilized for purposes of instruction. The wards of great hospitals should be the workshop in which the future physician should be thoroughly drilled in powers of observation, in methods of examination, in objectivity of conclusions.

ROBERT T. MORRIS, Professor of Surgery in the New York Post-Graduate Medical College, has been president of the American Association of Obstetricians and Gynecologists, and is the author of How We Treat Wounds Today, Lectures on Appendicitis, Dawn of the Fourth Era in Surgery, Microbes and Men, A Surgeon's Philosophy, and Doctors versus Folks. Dr. Morris writes:

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What's the matter with the layman? Nothing, excepting that he is human in refusing to know everything all at once and thereby depriving the people of two thousand years from now of joyful opportunity for making continued progress. Furthermore, the layman is like the doctor in having lost safe guidance by way of instinct when he evoluted away from firm footing upon four legs. Our ancestral hyrax or jumping shrew through some accident began to arise frequently upon his hind legs, leaving his fore legs free. The brain of the hyrax following by appetency to keep up with new activities of the free fore legs, doubtless began to manifest structural defects quite in accordance with the anatomic defects, which became more and more marked with advance through the lemur stage and through the anthropoid ape stage until man finally appeared. Man then proceeded to name himself *Homo sapiens*. That is perhaps the most characteristic thing that he has ever done; his *sapiens* runs in streaks, but it may be observed by an expert. Theology is still more daring and classifies man as a "finished product." There are 435 finished products in our Congress at Washington alone. On account of defective brain action due to appetency in following a structurally defective motor mechanism the layman chooses the wrong doctors, invests money in the wrong enterprises and chooses the wrong wife with a frequency that would shock the instinct center of an old four-footed rat.

The doctor is quite as fanciful as his Christian Science layman brother when he follows Freud and Jung back to the metaphysical days of Schelling and Hahnemann, thereby discarding the firm foundation of objective teaching established by Virchow, liberator. Both doctor and layman, equally victims of Lamarckian appetency, are gregarious by instinct and they act in gregarious manner. They vote en masse for the wrong political leaders as a matter of choice and judgment, they choose funny religions and they form schools in decadent literature and art about as often on the whole as they think straight at the right target. Having now placed the doctor in equally humble position with the layman, I may be free to say without causing offence that the layman does not as yet understand how to give himself the benefit of best medical advice. He

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does not understand that our greatest problem in the medical profession to-day relates to distribution of knowledge. Sixty-nine enslaved German professors were instructed to give wrong information upon a subject about which they knew nothing, to a world which was already pretty correctly informed concerning facts of the Servian ultimatum and the Belgian raid. If these professors had been endowed with the cost of one day of war and then asked to instruct the public about what they really did know in their respective scholastic fields, real knowledge would have been loosed like a flock of aeroplanes on kindly mission bent. This object lesson indicates that man has specialists enough in every department of human knowledge, but he does not know how to use the specialists which he has.

Distribution of that knowledge which we now have stored up in great elevator medical specialists about the country at large will cost a great deal of money. The layman is ready with his money for moving the wheat crop. He is not ready with his money for moving the medical science crop and the medical art crop. Vast endowment for the purpose is required. The doctor does not seek profit in a personal financial way through such distribution of knowledge, he wishes only to be of service to the public. The public does not know that. All that the doctor asks for is endowment for his institutions in sufficient degree to set willing forces at work in the interest of his brother the layman. The cost of the destructive war now in its fourth year is considerably more than one hundred million dollars a day. Give me the amount of a single day's cost of destruction; allow me to apply that for medical education purposes and I will promise that the medical profession in America will do more for civilization than the military profession can do for civilization with the same amount of money. Furthermore, I will not charge a dollar for my own services in administering the fund.

The layman's symposium in the MEDICAL REVIEW OF REVIEWS consisted mainly of kindly emotion expressed toward the medical profession. In psychology emotion stands for motion. Kindly emotion directed toward the medical profession will find its best kinetic response if potential energy is liberated

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in such a way financially as to allow the layman to help himself by giving his physician power. One reason why Christ is so popular idealistically is because He did not render any bills for service rendered. The reason why He is so little employed in the practical every day affairs of busy men is because He did not render bills for service rendered and then give the public the benefit of His accumulations.

Luckily man really does have ideals of intellect and ideals of character. He is perenially seeking perfection and development of all that is finest in the human mind. It is my belief that idealism in this direction accounts for the religions, rather than their basis in fear according to the views of scientific anthropologists. The day is past when man can suffer and die cheaply. Great endowment for the production and distribution of medical knowledge will allow us to perfect means of saving those most valuable units in the human public, the artists, the writers, the mechanics, the inventors, and constructive visionists generally whose financial expenditures every year average perhaps six dollars more than their incomes. These excellent people cannot now afford to have the best expert medical advice as a rule. Even the socializing of medicine will require vast endowment, endowment so large that it would amount to almost a tenth part of the sum that is now being expended in the dreary destruction of warfare.

Who is to furnish the means for production and distribution of medical knowledge? The layman! We are in his keeping, and he is in our keeping. The character of the keeping is however in the layman's hands. It rests upon his financial ability to set willing medical forces at work in his own interest. The public will gradually obtain as good doctors as it wishes to obtain, but that is true also in regard to its engineers, its physicists and its teachers. The human mind has wonderful resources for resisting the introduction of knowledge. A well endowed medical profession, however, will save life to such an extent that more frequent wars will be necessary for the purpose of keeping down population, unless men listen to experts on the subject of intensive agriculture and settle the over-population question in that way. Limitation of population may be

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safely left to the natural law of cultural limitation. The more highly cultured a human family, or a breed of race horses, or of dairy cattle, the more expert physicians are required for maintaining the status of the breed. The reason for that is because individuals approaching cultural limitations become so vulnerable to nature's fundamental agent of destruction, the microbe. A public which wishes to preserve and to extend culture, is in the hands of scientific physicians who require sufficient endowment for being kind in a large way unsentimentally. What's the matter with the layman? He is human and does not know if what I have stated is the truth.

LEWIS S. PILCHER, formerly Professor of Surgery in the New York Post-Graduate Medical School, is now consulting surgeon to various hospitals, and editor of the Annals of Surgery. He is noted also for his contributions to medical history. Dr. Pilcher writes:

It ought never to be forgotten that physicians are not a class apart, of any different mold from other people, but that they are a part of the people and generally reflect the characteristics of the community in which they live. More than most men a physician cannot escape being molded by public opinion as it prevails in the community in which his life is spent, and through the good will of which his income depends.

Medical men have always been the foremost advocates of the highest standards for their own profession. No one so well as the skilled and conscientious physician appreciates his personal limitations, as well as the limitations of his art, and the imperfections of the science upon which it is founded. In every age and in every land the impetus to higher attainments in knowledge, the establishment of higher ideals of the preliminary training and the appreciation of higher ethical ideas of the conduct of physicians themselves has had its origin in the medical profession itself. It is to be deplored that too often its best efforts are nullified by the failure upon the part of the public to appreciate the character and importance of these efforts, since by most people but little discrimination is made between the learned and conscientious physician and the crude

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and ignorant practitioner who vociferously acclaims the merits of some so-called system.

A great step forward for the protection of the public, and for the encouragement of greater thoroughness of medical teaching was begun when the State Medical Examining Boards began to be instituted a little more than thirty years ago.

The institution of these examining boards was the result solely of the demands of the better class of physicians, and it is only by the constant watchfulness upon their part that the usefulness of these examining boards is kept from being greatly interfered with by proposed legislation in favor of men who desire to practice medicine but cannot come up to the standard which has been fixed for those who are to be entrusted with its responsibilities. One of the most encouraging signs of the present moment, as regards the quality of the medical practitioners of the future, is the frequency with which men of wealth are establishing funds for research and for the endowment of medical teaching in this country. Every such institution of high grade which is established tends to lift up the standard of medical work in the community in which it exists, and exercises an elevating tendency among all similar institutions.

CHARLES M. ROSSER is Professor of Surgery in the Baylor University College of Medicine. Dr. Rosser writes:

If I were to make a criticism of the laymen's attitude toward the medical profession I would suggest an apparent lack of practical discrimination. The public is ready in praise of the profession as a whole, but as individual members of society fail too often to support individual members of the profession.

There is a widespread appreciation for scientific discoveries, such as vaccination, which has robbed smallpox of its loathsome horrors; of antitoxin for diphtheria, which has reduced the mortality by reversing it, so that instead of more than 90 per cent of the cases proving fatal before its introduction, a number fatal before its introduction, a number in excess of that recovers since its employment has become almost universal; for sanitary reliefs such as Gorgas gave, which rendered the Panama zone inhabitable; and for other similar successes in

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every instance creditable to men or combinations of men co-operating in thought and practice with the regularly organized medical profession. But even in quarters where such sentiment is personally expressed, many patronize for themselves and families "medical outlaws," whose notoriety depends upon antagonism toward the scientific principles and the ethical practices which has made medical progress possible.

In the matter of recompense for medical and surgical service, there needs also to be demonstrated a better and a more substantial appreciation.

A man who if he was charged with a capital offence would pay (or give security) to a lawyer such price as the best talent for handling criminal cases would charge in order that he might escape the penitentiary, or possibly the gallows, complains if a fee not nearly approaching the amount intimated is asked for an effort to relieve him of a malady seeking his life.

It is truly remarkable how very many people who act with consistent consideration for others and wisdom for themselves in most matters, seem to be singularly blinded when the normal view should be had of physicians and their services.

The business man is perhaps the type with which best to illustrate. He knows that the "cut rate" house is an enemy to stable commerce, nor is he charged with undue self interest when he insists that there is such a thing as "legitimate business."

The average man would not employ a lawyer in criminal or civil matters who did not have reasonable standing at the bar. He takes the correct view of what occurs through effort and evolution in all other departments of civilization. It is not too much for the medical profession to expect of the average man, the same consistent reasoning and the same logical conclusions which applies to the every day affairs of life elsewhere.

CHARLES G. STOCKTON, Professor of Medicine in the University of Buffalo, is attending physician to the Buffalo General Hospital, and consulting physician to the New York State Hospital for Crippled and Deformed Children. He has been president of the Medical Society of the State of New York. Dr. Stockton writes:

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To judge from the contributions to the symposium on doctors in the MEDICAL REVIEW OF REVIEWS, the medical profession deserves well from the public. From the very nature of things it must be that the public deserves equally well from the doctors. Both instinctively and rationally, mankind feels the need of the physician, and from the race the physician has been evolved as a necessity to civilization. Politicians say that the people have as good government as they deserve, and a parallel comment might be made by the public of its physicians, and by the physicians of its public. The relations between them vary in characteristics, but not in nature, and the outlook for improvement in relations between them for better service and for better appreciation most depend upon intelligent growth on the part of each. They are interdependent upon necessary and indispensable to one another, and the more we progress the better this will be understood.

ALBERT VANDER VEER, formerly Dean and Professor of Surgery at Albany Medical College, has been president of the American Surgical Association, American Association of Obstetricians and Gynecologists, New York State Medical Society, and the Albany County Medical Society. Dr. Vander Veer writes:

Any community is benefited by having a well-endowed teaching hospital. No medical college these days can succeed without a large endowment. In my day it has been a great comfort to witness this in a few instances. The more it is done the better informed will our friends the laymen become and in time will use their great wealth to better advantage and more intelligently. It is a campaign of information. The members of our profession will never be found wanting in working for the truth and imparting it to the people when opportunity is offered in such institutions. We are making gains, but much is yet to be done.

RAY LYMAN WILBUR, formerly Professor of Medicine and Dean of the medical school of Leland Stanford Junior University, is now president of the University. Dr. Wilbur writes:

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The symposium in the January number of the MEDICAL REVIEW OF REVIEWS giving opinions of various laymen in regard to physicians proved very interesting.

Physicians are simply human beings who are struggling as well as they can to deal with many unsolved as well as many solved problems. The wonderful achievements of the last fifty years in medicine warrant the fullest support of the profession on the part of all of those interested in the welfare of the race. As I think of my medical associates and of the medical students whom I have known, I am convinced that they are entitled to and worthy of the confidence and support of the public.

Naturally they will make some mistakes and their vision will be incomplete, but the proportion of real scientists seeking the truth among medical men increases each year, and in that lies the great hope of the future of medicine and of public health.

JAMES C. WILSON, Emeritus Professor of Medicine in Jefferson Medical College, is chief physician to the German Hospital of Philadelphia, and consulting physicians to several institutions, among them being the Rush Hospital for Consumptives, and the American Hospital for Diseases of the Stomach. He has been president of the Philadelphia County Medical Society, American Academy of Medicine, Association of American Physicians, American Climatological Association, and the American Therapeutic Society. Dr. Wilson writes:

Medicine is an art based on various sciences of nature and of man. Only in this light can differences in the individual efficiency of those practicing medicine be explained. The optimistic few who think of medicine as an exact science have little apprehension of problems in which there always must be, in the nature of things, many variable and unknown quantities.

Those who have devoted their lives to medicine are members of a profession whose ideals have been cherished in an uninterrupted continuity from the time of Hippocrates, whose aims are to discover the causes of disease and the principles that underlie the maintenance of health, the means of prevention and cure and the various methods by which this great mass of

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accumulated knowledge may be preserved and made available for use; which seeks to attain its ends by observation, experimental investigation and the use of reason, and the objects of which are to prevent disease, alleviate suffering and heal the sick. These aims, methods and purposes are everywhere the same, so that whether or not the individual physician is conscious of the fact, throughout the civilized world the medical profession constitutes a great guild or brotherhood.

Knowledge and methods are always changing. Advance consists not only in new facts, but also in errors abandoned and the unsparing application of scientific methods to every subject of investigation. Work is done in the spirit of the Athenians, always seeking and telling something new. Everything that cannot stand the scrutiny of advance must be scrapped. So much for the profession. What about the individual doctor? In a sense he is like the facts—good, indifferent and bad, alike in the laboratory and in the clinic. Of the bad, there is little to be said. He is scrapped sooner or later—mostly sooner, but never too soon. Of the indifferent many good things may be affirmed. He is eager for knowledge, devoted, self sacrificing, striving not always clearly but very earnestly for the best and with his heart in his work. If he falls short of his high aims it is mostly because of inadequate training. The mediocrity of medicine is far and away finer than the commonplace of most occupations. It almost reaches the high levels of other professions. Of the best physicians, whether in research or in the practice of the art, no praise is too high. They are the men whom Stevenson had in mind when he wrote of the "flower of our civilization." They bring to their work knowledge, self-discipline, energy, breadth of mind, greatness of heart, devotion to truth, every gift of nature, developed by every art of education. Startling thought! Criticism is constructive. If the education of the doctor were more thorough and complete, the proportion of the commonplace would be smaller and that of the leaders greatly increased. If the people want always and everywhere the best work in all departments of medicine, let them see to it that they get it in the right way by generously providing the means for the best and most liberal education for the doctor.

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"Through the medical journals have been given to the world nearly all the discoveries which the science and art of medicine owe to American physicians. They furnish the original data which are the foundations of monographs and text books, and their files remain interesting and valuable when the latter have become obsolete and are forgotten."

—JOHN S. BILLINGS, M.D.

EDITORIALS

Jacksonian Type of Seizures in a Case of Diabetes Mellitus

By JOSEPH SMITH, M.D.

The nervous complications of diabetes mellitus are many. Thus, Root has described rare types of paralyses, Kraus has discussed involvement of the peripheral nerves. Others, Heitz and Letoulle, for instance, have described changes in the arterial system in this disease. Diabetic tabes has been described by Bostack and others, funicular myelitis by Straus and others. The existence of epileptic seizures in diabetes has been regarded as very doubtful, but Homer and Gillain reported such a case. Rathery, in the Bull. Soc. Med. de Hop. de Paris 1921, reports a case of a woman of 46 who suffered from severe headaches, nausea and vomiting. Two weeks after the initial symptoms, she lost her speech. There were convulsive movements of the left upper extremity. Ten days afterwards there were convulsive movements in right upper extremity. The examination showed flaccid paralysis of both upper extremities. The patient died and the autopsy revealed subdural hemorrhage on the left side. In looking over the bibliography for the past nine years, I failed to find any reports of similar cases.

In view of the rarity of this complication, the following case

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occurring at the Jamaica Hospital is worth reporting, and I am indebted to Dr. L. Howard Moss for the opportunity offered to study this case.

K. J., age 54 years, was admitted to the hospital on Nov. 26, 1929, with the following history: A week prior to admission she complained of visual disturbances and pains in the right side of the head. Three days before admission she complained of severe frontal headaches followed by numbness and weakness of the left arm and hand. The last day at home she had convulsions. From her previous history we gather that she had two children who died in infancy from convulsions; later she had one miscarriage. Has never been pregnant since. She had no serious illnesses or operation, and never had occasion to consult a physician. When admitted, she was noted as having been restless, confused, pupils reacted to light, knee jerks equal and normal. Suspicious left Babinski. There was marked weakness of the left arm and hand, temperature 99.6, pulse 90, accentuated second aortic sound, blood pressure 168/94. The nurse noted some convulsive seizures, but no definite description of the condition was entered. For two days there was some general improvement noted—fewer headaches complained of and no confusion. On the 29th there were noted convulsive seizures, and on the 30th the convulsions were first definitely described as "coarse twitchings of entire left side of body resembling Jacksonian Epilepsy." I saw her for the first time on Dec. 2. During the examination she had a few convulsive seizures which consisted in turning of the head and eyes toward the left side, twitching of the face and left upper extremity. The attacks were at frequent intervals lasting about a minute. In the intervals she was quite clear and able to reply to questions.

EXAMINATION disclosed a left hemiparesis, of a flaccid type, left knee jerk three plus, right one plus, no Babinski or ankle clonus; no paresis of eye muscles; pupils reacted promptly to light; fundi were normal; tongue protruded but not sufficiently to determine if any deviation existed. Pain sense apparently normal. Blood Wassermann was negative. Urine examination showed a specific gravity 1031, 5% of sugar, albumin two plus;

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blood sugar 273.9; urea 47.3; creatnine 1.6 mgm. Hemoglobin 80%. Blood count showed 11,300 whites, 50% Polys., 43 lymphocytes. Reds 4,470,000. Insulin 20 units were administered. Next day specific gravity of urine dropped to 1008, there was no sugar. Patient has been gradually improving under insulin treatment. Once the specific gravity of the urine dropped to 1002, trace of sugar reappeared, diacetic acid was a temporary phenomenon. There was no recurrence of the convulsions, patient was not confused and in two weeks time patient went home completely recovered. X-ray of the skull showed unusual thickness of the frontal bone and some periosteal thickening in frontal and right parietal regions.

DISCUSSION: This case presented symptoms of unilateral cerebral irritation and of paralytic phenomena, convulsions of a Jacksonian type, later paresis of the left arm and leg; consciousness was very little involved. Signs of cerebral neoplasm were wanting. On the other hand, the presence of large quantities of sugar in blood and urine and the gradual recovery from the irritative and paralytic symptoms led us to believe that our original diagnosis of cerebral thrombosis was unquestionably right. This thrombosis is due primarily to a pathologic state of the vessel wall brought about by the irritating effects of the sugar and acetone in the blood. Three months after the incident patient still remained well.

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BOOKS

166. Lawrence J. Henderson: Blood—A Study in General Physiology. Yale University Press, New Haven, 1928. The distinguished publications of the Yale University Press and the Silliman Memorial Lectures are well known in the scientific world. The volume by Henderson presents the fundamental contributions made by the author during the past decade. As a result of his experiments, he reaches significant and valuable conclusions which will have wide physiological as well as clinical application.

The author treats of the blood of vertebrates as a physico-chemical system of eight components; i.e., water, carbon dioxide, oxygen, hydrochloric acid, the bases of the plasma, the bases of the cells, the proteins of the plasma, and the proteins of the cells. In studying the more complex chemical phenomena of the blood in the chapters on "Acid-Base Equilibrium," "Dissociation Curve," "Physico-chemical System," and "The Respiratory Cycle," he makes use mainly of the mathematical methods of analysis and the application of the phase rule. He applies a nomogram that he constructs to the several variables which he takes up in examples and experiments. As he himself fears, these methods often assume a bewildering complexity. The nomographic methods are cumbersome, although scientifically powerful.

To the ordinary physician, and even to him well versed in clinical medicine, this volume will be difficult to master. The chapter of conclusions, however, are very important and fundamental and are well-worth wading through the difficult parts of the book.

The language could be made more simple and the phraseology more direct. For the biochemist, the volume will prove a standard text on the blood.

MORRIS H. KAHN, M.D.

167. *Axel Munthe: The Story of San Michele. E. P. Dutton, New York,* 1929.—"The Story of San Michele" makes pleasant and light reading. The atmosphere is not particularly medical, and the entire book might have been written by a layman whose interests are quite diversified. The incidents relating to animals and love of animals are particularly well portrayed. They indicate a depth of sympathy which made it possible for the author to live through the cholera epidemic in Naples that was so devastating. The

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chapter in which Pasteur is pictured when he was working on the development of the hydrophobia vaccine is the essential medical theme of interest. The author hints at his amours and his temptations but does not throw wide open the door which would make his own life and personality perceptible through the pages of the book.

168. *Thomas H. Cherry: Surgical and Medical Gynecologic Technic. F. A. Davis Co., Philadelphia.* The title of the book explains its scope. It is not a textbook for gynecology, but it explains and describes the numerous gynecological operations in a most explicit, unequivocal manner. The illustrations are excellent, and by following them closely, one can duplicate the author's technique without difficulty.

169. *Edward L. Keyes: Urology. D. Appleton & Co., New York.* Keyes' "Urology" hardly needs any introduction to the medical profession. For more than half a century, this text book under various names has presented the knowledge of genito-urinary diseases in a most satisfactory manner, and was always fully up to date for the various periods in which it has appeared.

While this volume is a lineal descendant of Van Buren and Keyes' *Practical Treatise on the Surgical Diseases of the Genito-Urinary Organs* which appeared in 1874, it is, in the real sense of the word, a new book, and we can cheerfully recommend it to both the specialist in genitolurinary diseases, and the general practitioner who wants to look up certain points in this important specialty.

The style is clear and vivid, and the author shows that one can be thoroughly scientific without being dull.

170. *E. S. Gosney and P. Popenoe: Sterilization for Human Betterment. Macmillan Co., New York, N. Y,* 1929. The progress of eugenics as a practical science can only become realized when one reads such a study as that by Gosney and Popenoe. The authors have carefully analyzed the result of over 6,000 sterilizations in California state hospitals. The majority of these were done in feeble-minded or insane individuals; but an appreciable number were also done on normal people who presented themselves for the operation, mainly as a means of birth control.

In this book are presented a history of sterilization and the details of the operation. The effects on the patients' behavior, particularly the physical and mental reactions, are recorded in detail, gathered as they were by questionnaires and personal discussion. The effect on the sex life of the operated individuals is particularly well-presented.

As a result of their studies, the authors have concluded that sterilization by the method of salpingectomy or vasectomy destroys no organ or gland of the body. Their investigation showed that it had no effect upon sex desire, sex performance, or sex feeling of the subject; except a favorable psychological effect in some cases, particularly where the fear of pregnancy was removed.

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At present, the statutes of most states must be amended so that the carrying out of the eugenic laws will be in the hands of scientists of unimpeachable integrity.

The popularization of a treatise of this kind will do much to foster the interest and appreciation of the laws relating to eugenics in general, and particularly of the legality of eugenic sterilization of hereditary defectives.

171. *Arthur F. Hurst and Mathew J. Stewart: Gastric and Duodenal Ulcer.* Oxford University Press, 1929. One of the most important of the recent publications of the Oxford University Press is this magnificent volume by Arthur F. Hurst, Senior Physician to Guy's Hospital and Mathew J. Stewart, Professor of Pathology at the University of Leeds; the radiological section are contributed by P. J. Briggs of Guy's Hospital. The numerous illustrations and the plates in natural colors make this work an atlas as well as a text-book.

The earliest recorded case of gastric ulcer is reported by Marcellus Donatus of Mantua in 1586; the next reference to ulcer in medical literature is that of Bonetus of Geneva in 1700; Litre was the first to describe a case in which death followed hematemesis from a gastric ulcer in 1704; the earliest detailed report of a perforated gastric ulcer is due to Rawlenson in 1729; the famous Matthew Baillie published the first clear description of the morbid anatomy and symptoms of gastric ulcer in 1793. Then followed the classic work of Benjamin Travers in 1816; of John Abercrombie in 1828; of Jean Cluveilhier between 1829 and 1835; of Budd of King's College in 1855; of Trier of Copenhagen in 1863; and of Bucquoy in 1887. With Brinton, Dieualfoy and Moynihan a new era in our knowledge of ulcer was inaugurated.

The present work, however, necessarily devotes but brief attention to the historical aspects of the subject. This is a clinico-pathologico-radiological study of ulcer, and emphasis is laid—after the anatomical and physiological introduction—on the pathogenesis, symptoms, diagnosis, prophylaxis and treatment. Each chapter is the result of experience, and further shows an extensive acquaintance with literature of the subject. There are numerous references to American workers. An adequate index concludes this notable volume.

173. *Joseph Tenenbaum: The Riddle of Sex. Macaulay Co., New York.* A book for the layman that covers a complex subject such as life, must in itself, contain subject matter that is full of life, eloquently portrayed, yet simply told, so that he who reads shall not be disturbed by references to look up or words so difficult that the process of skipping parts or pages becomes an art. Such a book has been written for us by Dr. Joseph Tenenbaum. In his Riddle of Sex, he refuses to solve this difficult problem, but makes it so easy, lifts the veil of mystery surrounding this greatest of all life's urge so completely, that one feels that he can readily answer this age old "riddle."

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This single volume, in its compactness and completeness, contains the subject matter of volumes which would takes months to read. The author has the knack to simplify the most difficult theories and hands them to us in a predigested form, ready for intelligent digestion. There is no chapter that can afford to be omitted, yet each chapter can be read separately, for this work is a book of books, portraying life's cycle in all its beauty; it is materialistic, yet beautiful; it is the story of the origin of life and the origin of decay, exemplified by Sir Michael Foster in the following words: "When the animal kingdom is surveyed from a broad standpoint, it becomes obvious that the ovum or its correlative, the spermatozoon, is the goal of an individual existence; that life is a cycle beginning in an ovum and coming round to an ovum again—a mere by-play of ovum-bearing organisms."

CHARLES J. BRIM, M.D.

172. *P. S. Pelouze: Gonococcal Urethritis in the Male for Practitioners. W. B. Saunders Co., Philadelphia*, 1928. This monograph of 350 pages is a well written and complete discussion of the subject. It is written particularly for the general practitioner and should be one of the most valuable books in his library. The author calls attention to many of the fallacies of common treatment and gives the reasons for his conclusions substantiated by a careful study and observation of many cases.

The reader's attention is constantly called to the fact that, in general, gonorrhea "is probably the poorest treated of all diseases." The following statement is made: "In the actual status of the complications of gonorrhea about 30% is due to the disease and 70% to avoidable conditions."

Many striking statements are made such as: "The gonococcus is not a delicate organism as is commonly taught." "Most chemical germicides are overrated." "The function of the physician is not to kill the gonococcus but to aid the patient in every way possible." "Tissue fluids and phagocytosis play a minor role in the cure of the disease while antibody formation is very much more important." Ninety-five per cent of gonbrrhea is treated by the general practitioner." "Oral treatment alone is not sufficient but is more desirable than germicidal attack on the organism only."

The chapter dealing with treatment is excellent and should be read by every physician treating gonorrhea. Hygiene is well covered as are the various complications of the disease. The last one hundred pages are given over to valuable case reports which are thorough and constitute a very important section of the book.

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BOOKS ON PSYCHOPATHOLOGY

Diseases of the Nervous System: A Text-Book of Neurology and Psychiatry. By Smith Ely Jelliffe, M.D., Ph.D., and William A. White, M.D. Fifth edition. 1174 pages. Lea & Febiger, Philadelphia, 1929.

It is a pleasure to call attention to the appearance of a fifth edition of a work which has been so favorably known since its original publication in 1915 that extended comment upon this new edition, revised with a completeness such that hardly a chapter remains as it was in the previous edition, is scarcely necessary. At this date, indeed, it is almost superfluous to remark that the point of view from which the book is written is that of the concept of the nervous system as the organizer of all experience, "racial as well as individual," and the co-ordinator of that experience. Furthermore, to quote from the introductory chapter, it is "not only a work on diseases of the nervous system, but it would offer a general viewpoint from which to regard all types of disease, even though it makes its main object to discuss such modifications of function of certain organs as are comprised within the very broad confines of neuropsychiatry."

The revision which the present edition represents is perhaps most complete and at the same time most eloquent of the spirit of the whole work in the 200-page section on the neurology of metabolism, consisting of two sumptuously illustrated chapters on the vegetative nervous system and the endocrinopathies, respectively. For it is here that the authors have in particular striven to portray "adequately and judiciously the front line advances of this knowledge"; so that if it should here and there prove that they have accepted too early and approved too fully the newer researches in this field, they have done so in the belief that in a realm of knowledge beset with hundreds upon hundreds of unsolved problems, as is true of neuropsychiatry to a degree undoubtedly greater than in any other field of medicine, "a healthy optimism is to be preferred to a studied conservatism" —hence "a certain preference for things hoped for, rather than a repetition of that which is already proven." Equally is this forward-looking spirit in evidence in the section on symbolic neurology, dealing with the mechanisms that operate at the psychic or mental level, and treating of the neuroses and psychoneuroses which comprise not only the broadest field in psychiatry but, there is hardly reason to question, the broadest field in all medicine; and it is in the discussion here presented of the disturbances of these psychological mechanisms, of the interrelationships of soma and psyche, of the psychogenic factors in disease, that we find the final exemplification of the fundamental tenet of this Text-Book, that the three levels treated therein—namely, the vegetative, the sensorimotor, and the symbolic—"are not mutually distinct, but only different aspects of the strivings of the individual and the component parts thereof as expressed by the various forms of solutions and compromises made in the processes of integration and adjustment."

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To quote once more from the preface—repetitiously, perhaps, but certainly such a spirit is peculiarly appropriate to the portrayal of the problems of the diseases of the nervous system—"The accent therefore in this, as in previous editions, is toward a scientific curiosity in solving riddles hitherto insoluble." What attitude of mind, what approach to the subject could be more proper and at the same time more stimulating and provocative in a field of knowledge of which one can so fittingly speak as in the case of neuropsychiatry of "the little done, the undone vast," and regarding which one must not be surprised, in Senecan phrase, that what is buried so deep should be unearthed so slowly? Rightly the authors offer this present edition to the toast—"to the future." HENRY A. BUNKER

Selected Papers. By Karl Abraham, M.D., with an introductory memoir by Ernest Jones. Translated by Douglas Bryan and Alix Strachey. London: Leonard and Virginia Woolf and the Institute of Psycho-Analysis, No. 3 of the International Psycho-Analytical Library, edited by Ernest Jones, 527 p.

The volume contains practically the main literary legacy of Karl Abraham appearing in an English translation for the first time. There is hardly a problem in the field of psychoanalysis to the understanding of which Abraham has not contributed. But his major contribution is a group of investigations treating with the infantile pregenital stages of the development of the libido and with their significance and application to the problems of psychiatry, especially to these of manic and depressive states. Abraham is the foremost exponent, although not the discoverer, of a positive patallelism between libido development and character formation. Among other things he gave thorough analyses of various sublimated forms of behavior and peculiarities of character. He found that certain expressions of pride, obstinacy and touchiness, and opposite demonstrations of marked submissiveness and perpetual feelings of helplessness may be the distinctive derivatives of pregenital stages.

Undoubtedly infantile characteristics in adults expose various strata in the composition of character belonging to different periods. Analyzing the ingredients of a character as derived primarily from the erogenous zones, Abraham notes the oral-erotic stage, which precedes the anal-erotic and the genital stage that follows it.

The influence of oral-eroticism on character formation is perhaps Abraham's most brilliant and original contribution to *libido embryology* and modern *characterology*. The eruption of teeth results in the replacement of the sucking pleasure (the pleasure of taking in) by bitting pleasure (destructiveness) which is one of the causative factors in the development of the child's ambivalent attitude to people. In the spoiled or disappointed child the bitting activity is increased, thus contributing to the development of infantile sadism.

The papers dealing with melancholia and mania are also of great importance and have secured for themselves a dominant position in psychiatric literature. Abraham uses his findings concerning the embryology of the

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libido to explain certain forms of insanity, while on the other hand the findings of analysis of the latter are made use of by him to control and substantiate the theory of libido development. Abraham illustrates his investigations with a number of analyzed cases which, in spite of their brevity —or perhaps because of it—might be called masterpieces of keenness of observation and clarity of presentation. The therapeutic possibilities of psychoanalysis in cases of melancholia and mania are discussed fully.

The *selected papers* contains also a valuable memoir by Ernest Jones, a fine detailed recapitulation of Abraham's work including abstracts of his papers, besides a very sympathetic picture of the man's noble and inspiring personality.

The editors may be congratulated on their appropriate selection of papers in this volume which provides a new source of teaching that has been lacking until now. It gives the English student an opportunity to benefit by Abraham's researches and thus furnishes a new orientation to the work of the younger psychiatrists. It presents them with a careful study of first-hand psychoanalytical investigations. Aside from the general difficulties with which the younger psychiatrist has to contend, there is this disadvantage that he must learn to master the inner resistances in his attitude towards the patient. To the non-analyzed psychiatrist—that is the one with no insight into his own unconscious reactions—Abraham's work is apt to appear particularly instructive and enlightening. DORIAN FEIGENBAUM.

Introduction to the Technic of Child Analysis. By Anna Freud of Vienna. Nervous and Mental Disease Publishing Co., New York and Washington, 1928. 58 pp.

In these lectures the author discusses her experiences as a child analyst. She deals with the subject under the following headings: (a) preparative steps; (b) methods of child analysis; (c) the peculiar problems of transference in child analysis; (d) the relation of child analysis to education. The book is not a piece of dilettantism, as is so frequently the case with books on children, but a scientific study based on the results of ten complete, long-term analyses.

Contrary to the opinion of some who recommend psychoanalytic treatment in all cases of disturbance, the author restricts analysis to fully developed infantile neuroses. Anna Freud recognizes, besides, that in order to win the child's confidence infinite tact and intuition aside from a bagful of tricks is requisite. By means of a series of remarkable records from her own work, she shows that under especially favorable conditions the child may even be made to get some insight into the neurosis and to develop a willingness and desire for recovery. Standard analysis of dreams, moreover, is not only perfectly applicable in the analysis of children, but in most instances even more effective than with adults; dreams are more real to the child. The writer also stresses the importance of day-dreams and "continued stories" and of children's drawings in establishing access to the

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The *selected papers* contains also a valuable memoir by Ernest Jones, a fine detailed recapitulation of Abraham's work including abstracts of his papers, besides a very sympathetic picture of the man's noble and inspiring personality.

The editors may be congratulated on their appropriate selection of papers in this volume which provides a new source of teaching that has been lacking until now. It gives the English student an opportunity to benefit by Abraham's researches and thus furnishes a new orientation to the work of the younger psychiatrists. It presents them with a careful study of first-hand psychoanalytical investigations. Aside from the general difficulties with which the younger psychiatrist has to contend, there is this disadvantage that he must learn to master the inner resistances in his attitude towards the patient. To the non-analyzed psychiatrist—that is the one with no insight into his own unconscious reactions—Abraham's work is apt to appear particularly instructive and enlightening. DORIAN FEIGENBAUM.

Introduction to the Technic of Child Analysis. By Anna Freud of Vienna. Nervous and Mental Disease Publishing Co., New York and Washington, 1928. 58 pp.

In these lectures the author discusses her experiences as a child analyst. She deals with the subject under the following headings: (a) preparative steps; (b) methods of child analysis; (c) the peculiar problems of transference in child analysis; (d) the relation of child analysis to education. The book is not a piece of dilettantism, as is so frequently the case with books on children, but a scientific study based on the results of ten complete, long-term analyses.

Contrary to the opinion of some who recommend psychoanalytic treatment in all cases of disturbance, the author restricts analysis to fully developed infantile neuroses. Anna Freud recognizes, besides, that in order to win the child's confidence infinite tact and intuition aside from a bagful of tricks is requisite. By means of a series of remarkable records from her own work, she shows that under especially favorable conditions the child may even be made to get some insight into the neurosis and to develop a willingness and desire for recovery. Standard analysis of dreams, moreover, is not only perfectly applicable in the analysis of children, but in most instances even more effective than with adults; dreams are more real to the child. The writer also stresses the importance of day-dreams and "continued stories" and of children's drawings in establishing access to the

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child's unconscious. Modification in the technique of "free associations" is discussed very fully, and an entire chapter is given to the place of transference in child analysis.

Above all, Anna Freud emphasizes the importance of the parents cooperating with the analyst. On this point she is uncompromising, and declares that she refuses treatment unless harmony in the parental group, of which the analyst becomes automatically a member, is guaranteed.

The author concludes with the following summary: (a) Child analysis has to retrace only a short distance in order to establish a normal path of future development; (b) the fact that the infantile neurosis developed as a result of conflicts that revolve about images of parents still alive, smooths the way for the correction of the super-ego; (c) since the requirements of children are comparatively simple and not difficult to satisfy, it is possible to modify their environment to suit their needs. It is, naturally, otherwise with adults.

Introduction to the Technic of Child Analysis is written directly and simply; it is free from dogmatism and didacticism, and does not cater to the public that likes to be regaled with concrete, even if frequently unreliable suggestions. Nevertheless, it will undoubtedly meet with the approbation of every serious student and worker in the field of child psychology.

DORIAN FEIGENBAUM.

Critique of Love. By Fritz Wittels. The Macaulay Company. New York; 1929, 317 pp. $3.50.

Called by the author himself "an original study in applied psychoanalysis," this volume can hardly be classed with clinical books. Yet, in the present milieu, which is accustomed to seeing all manner of confused work on the subject, the fundamental treatment which Dr. Wittels gives to the one aspect of love that is treated in the book classes it as first-rate. The belle-lettristic style makes its appeal applicable to the intellectual branch of the general public, but the thorough treatment and the tracing down of all the disturbances in love-life to their origin, make the book valuable material for physicians as well. Difficulties in love-life and perversions involve all sorts of difficulties in character development and the display of other neurotic symptoms, handling love-life psychoanalytically, therefore includes a study of the basis of all neurosis.

The book is divided into many chapters, most of them dealing with different manifestations of disturbances in love-life. Particularly important, however, is the first, entitled "Freud's Pathway," which gives a short history of the development of psycho-analysis. In the chapter entitled "Sex Deviations," there is much important data on perversions, and the difficult task of presenting the complications of libido organization is here handled with extraordinary comprehensibility. Of special importance, also, is the chapter entitled "Parents and Children," where the Oedipus complex is discussed at great length, in its manifestations both in boys and girls. The ambivalence of the child's emotions toward all possible members of a family

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—father, mother, brother, sister, step-parents, is thoroughly handled, and the contribution made by these members to the development of the personality is emphasized, particularly the rôle played by the parents in the development of the Super-Ego.

A special chapter is devoted to love and the part it plays in marriage, and a very instructive chapter, entitled "Great Haters," deals with the development and various manifestations and transformations of sadism.

The last chapter is a splendid treatment of the frequently-encountered modern type of woman, whose case is diagnosed as psychosexual infantilism and whom Dr. Wittels calls the "child-woman." In this connection the significance of fantasy life in all women and in this type in particular, and the part that fantasy plays in the final displayed character, is made very clear. Of particular importance are fantasies dealing with prostitution and parthenogenesis.

Of special value, even from a clinical standpoint, is the fact that even when drawing theoretical conclusions, dealing with historical personalities, Dr. Wittels never fails to give proper and thorough treatment of the dynamic powers working deep in the psyche, the quantity and division of which is responsible for the whole external character. A. S. LORAND.

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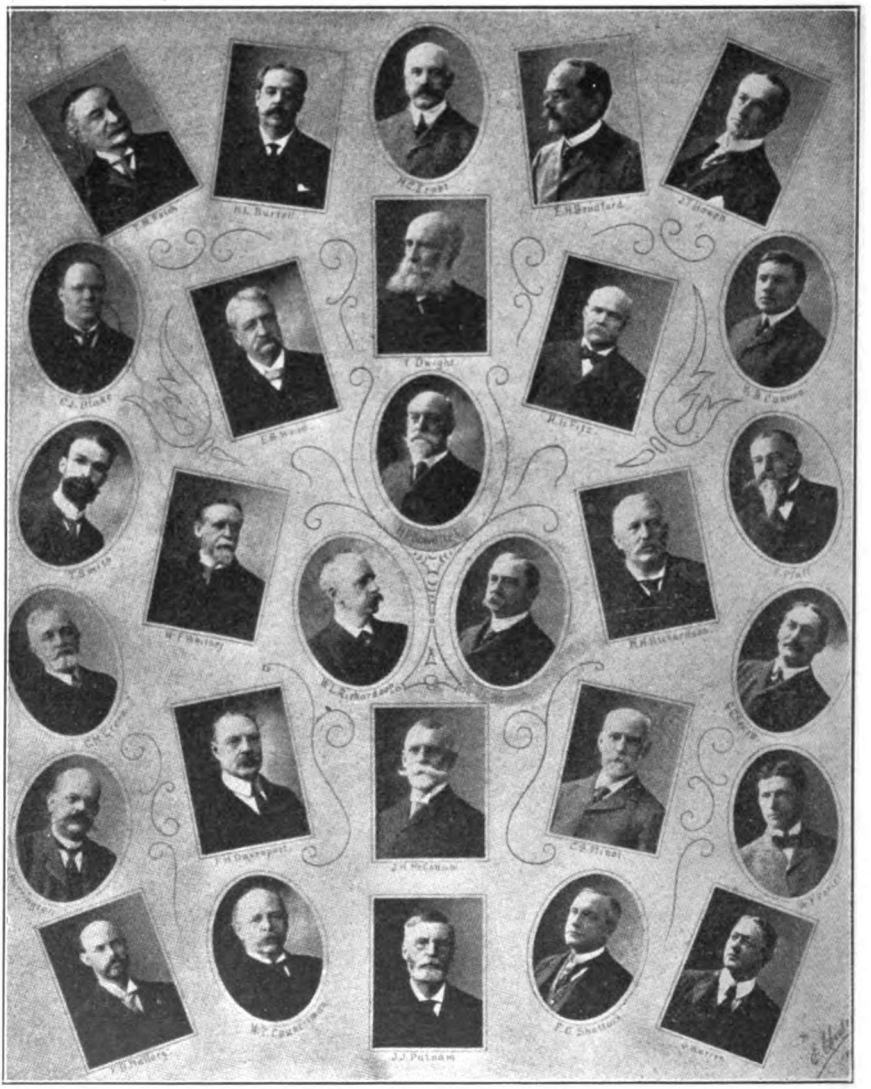

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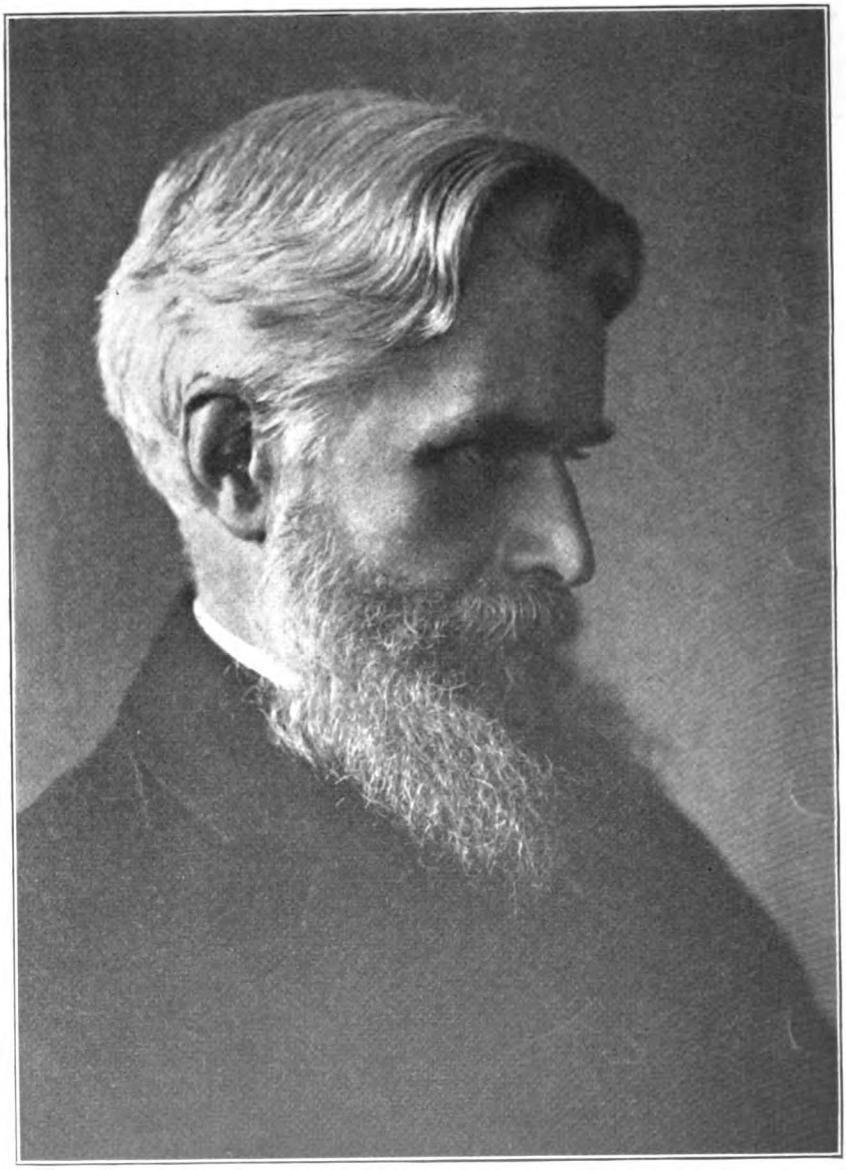

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The Psychoanalytic Method of Treatment[1]

By PAUL FEDERN, M.D.

Psychoanalysis began its development as a method of treatment and has evolved into a system of general psychology. Here we shall present in general terms the method of treatment. No other illness entails so little merely personal suffering on the part of the patient as a neurosis does. Through a case of severe neuroses social life becomes permanently impaired. Neuroses arise namely from the opposition between the specific urges of the individual and the claims of society, particularly of the family, where he begins his existence as a child and from which he is unable to break away. Through conflicts between the instincts of the personality (the "Id") and the volitional part of it (the "Ego") which latter must subordinate the impulses to the "shall" (Super-Ego), the neurosis is provoked and properly maintained. The patient flees —to be sure involuntarily and without guilt feeling from performance and decision into neurotic illnesses: this interpretation has been fully confirmed by the abundant experience with war neuroses. Every neurosis, therefore, is bound up with all the circumstances of the environment, with the history and the mistakes or omissions of the parents, relatives, later of the companion in marriage and with the patient's love life in

[1] Reprinted through the courtesy of the Hippokrates-Verlag, Stuttgart-Berlin, from *Das Psychoanalytische Volksbuch*, edited by PAUL FEDERN and HEINRICH MENG, 1926. The editor is indebted to Dr. A. SLUTSKY, New York, for the translation.

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general. The actual cure enables the patient to assert himself in a normal and healthy manner and thus soften the living conditions of the entire environment.

But, since humanity defends itself against a truth which signifies for each an act of self-recognition, psychoanalysis has long encountered a special resistance which is still further heightened by the circumstance that analysis finds alongside of other causative factors in a neurosis marked disturbances in the sexual development. In the sex life of many people there prevails to a noteworthy degree insincerity and hypocrisy both in relation to themselves as well as towards others. Nevertheless the method has established itself, but not until its scientific results had transformed psychiatry (the study of mental diseases) and psychology (the study of mental processes).

It was in the years 1880-82 that the systematic "talk-oneself-out as the basic principle of every psycholoanalytic treatment was successfully carried through by the Viennese physician, Dr. Josef Breuer,[2] on a specially severe case of hysteria, a 21 year old girl who suffered from paralysis and contracture of one side and disturbance in speech, vision and eating, deep depression with periodic states of absence and dreamy states.

The term "psychoanalysis" was only later employed by Freud. "Psyche" designates soul. "Analysis" does not here simply signify "investigation" or "determination." Here it is definitely derived by analogy from chemistry, the science dealing with the decomposition and synthesis of matter. The term therefore signifies that morbid as well as normal psychic manifestations cannot satisfactorily be investigated and mastered in toto but must rather first be reduced to simpler processes, indeed decomposed into their very units, in order that the elements become comprehensible and accessible to therapeutic

[2] Dr. Josef Breuer, born in 1842, died 1925, was "Dozent" (assistant professor) at the Vienna University. He has made brilliant discoveries in the field of physiology. He stimulated the more youthful Sigmund Freud, born in 1856, now professor in Vienna, to mutual observations and treatments. As result of their efforts the epoch-making book "Studies in Hysteria" was published. Breuer who, thus, merits gratitude for the first fundamental discovery, withdrew forthwith from pursuance of his investigations, which Freud alone continued.

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influence and for each element is established origin and history, and above all its relationship with the instinctual and life development. Even the process of genesis itself is investigated by analysis in order to understand also this, and thereby to point the way to a more effective mental hygiene.

Today when so many people of all ages and of almost all nationalities from the normal to the most severely afflicted have been analyzed and where our experience with each case encounters observations already established it becomes hard to believe that 40 years prior, the symptoms as well as the morbid process in the neurosis (hysteria and compulsion phenomena) and in the mental diseases were without meaning to the physician, so much so that he entirely ignored their manifestations. The hysterical phantasy-productions in their inconsiderateness and falsehood were judged to be as worthless as insane drivel of the mentally diseased; both passed for as senseless and without substance.

It required courage depth and kindness on the part of Breuer to listen hour after hour daily trustingly and attentively to a hysteric lady even though she was a talented and excellent personality. It developed into a confessional with psychic co-operation on the part of the physician. Such confessional differs from one related to the priest in that, there the subject confesses painful sins that he is conscious of, while the patient on the other hand who must likewise unburden himself in speech without, however, facing the physician is in the dark as to what is weighing him down and causing his illness. In his free vent of self-expression is involved the possibility of recalling or becoming conscious again of the no longer conscious or unconscious, yet active experiences and mental processes. Breuer accomplished the making of the unconscious conscious by means of hypnosis, into which his first case merged almost spontaneously, on account of the dreamy states that accompanied the illness. The method was called "cathartic" (soul cleansing) treatment, by employing a term of Aristotle. Recurring in each case, but ever surprising, was the circumstance that the symptoms found explanation through the hypnotically induced revival of the past. The patients

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were actually rehabilitated (made esteem-worthy again), their symptoms were not all meaningless and their drivel was not at all simulated or staged. Only they, themselves, could not know the meaning of the illness before the treatment, still less could the environment know, including the physicians. The speech does not proceed merely as an interesting recital of noteworthy forgotten things or as a presentation of stray thoughts. The patient moreover relates with excitation and effect, thereby freeing his spirits; the illness-generating past is repeated with the affect with which it was originally experienced. The pressing, unfulfilled wishes, and all of the affect, the pain of frustration, anxiety, and sense of guilt have thus far been present. They have unconsciously prepared generated and properly maintained the useless, burdensome and tormenting illness. And now the remarkable happened, that these excitations ended, or as professional terminology has it, were "abreacted" after so many years, through uninhabited expression. How is it to be explained?

The old experiences have in the course of time become the past, and unlike other experiences recoverable to memory, have not lost their effectiveness with the passage of time, only because, forgetting has taken place in that peculiar manner referred to by professional usage as "repression," in contrast to real complete forgetting. Moreover, the recalled happenings hark back to periods of immaturity and weakness, back into early childhood. Since then, however, the individual has developed, in favorable cases, caught up in development, that is, has corrected deficiencies and developmental inhibitions, that have once lowered his resistance power.

The individual thus invigorated, is able to master the recurring, even though ever painful-memories, gets in with newly experienced events and feelings, which in their original, manifestation, have made him ill. He no longer evades the emerging emotions, but rather endures and expresses them.

Manifestations such as repeated, verbal expression, as well as display of associated excitement, often mounting to tears, serve as means of release. Also for a certain period of time the newly awakened feeling excitation invades the entire exist-

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ence of the patient, for days and weeks fill up his dreams and permeate his daily activities and emotional experiences. He runs the full gamut of formerly repressed feeling excitations and rids himself of them finally. In all these earnest labors, the physician takes part; the explanations he offers, assist and first enable the patient to effect the solution. The treatment affords the patient the longed-for relief. His hopes were always directed partly consciously and in part unconsciously, towards some redeemer. This helper in the patient's phantasy bore in the main, the image of his father. The physician now actually assumes for a time this role, and the patient presents himself in the relationship of a child, he "transfers" unto the physician the memory-image primarily of the father, a "father imago" (Imago signifies image, "imaginary image") but also of the mother and of other prototypes from the past. This attachment for the physician is necessary for the deliverance of the patient; later it is to give way to attachments for other people which, however, is not effected easily by the cathartic method, whose curative influence, we now believe to have made intelligible.

This has been one of the reasons why Freud dropped this method. Some psychotherapists are still employing it even today.

In the war when it involved obtaining quick results in cases of war nersoses arising under abnormal conditions, it was again successfully applied on very many soldiers by Simmel in Berlin. One of the difficulties is that very many patients refuse to submit to hypnoses. Moreover, the results are not always lasting since hypnosis by its very nature presupposes a too intimate attachment on the part of the hypnotised for the hypnotiseur, and as soon as this relationship changes, the results also leave off, which were reached only out of love for the hypnotiseur. It is also not even desirable to place every neurotic in such a position of dependence, as to require extraneous will for the maintenance of well-being, and to forfeit his own volitional faculty. Indeed there are neurotics with predisposed impairment of volition incapable of ever attaining real independence. One must be contented, when such indi-

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viduals, although will-bound, are at least without neurosis capable of work and enjoyment. The real aim of the psychotherapist, however, is to restore the neurotic his independence. With this in view it is necessary whenever possible to renounce hypnosis, as Freud has fully done when he displaced the cathartic method by the "psychoanalytic."

This method consists, in that the individual analyzed, gives himself over to free thinking without any intentionally selected direction and unhampered by any restraint, and whatever occurs to his consciousness he is to express immediately and unreservedly. It is a form of loud thinking without a goal-idea, adhering to the preceding conscious ideational content until displaced by succeeding associations. As simple as this regulation may appear it is nevertheless difficult of observance. It requires the guidance of an experienced analyst.[3] He participates without any bias in the disentanglement of the emerging thought whirl.

He perceives connections readily and in proper light, because he is entirely unpredjudiced; while the patient, whose most intimate experiences are involved, is necessarily at first prepossessed and must have an incorrect evaluation of it, since by means of it he has to justify his morbid tendencies. Most of the disturbances in his development and in his relationship to others, the patient for the first time learns to judge without bias or partiality.

But the salient point is that the patient gradually comes to an understanding of the unconscious relations. Here are involved psychic processes that do not follow the regulations of mature thinking and that also cannot be tested by objective agreement with reality.

These are more in keeping with an unbridled impulsive

[3] Today there is already practiced abuse of the method, since those who know it only superficially through reading, begin to apply it unscrupulously, alongside of other therapy. Such "wild" analysis is damaging, for which the Freudian School—which provides opportunity for complete technical training—bears no responsibility. Psychoanalysis should not be combined with other methods of treatment; specifically the analyst should not himself examine the patient physically. The consultant and the analyst should jointly decide in each case, whether the organic or the psychoanalytic treatment is more urgent or which of the two should precede. In case of intercurrent bodily illnesses analysis should be interrupted and resumed after resolution of the illness.

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process in which excitations belonging to most widely differing periods of time, exist in an apparently confused conglomeration. Also this immature, infantile and primitive (pertaining to the savage) lingering psychic activity, which cannot yet be termed thinking, has definite laws according to which presentations organize themselves. The discovery of it has augmented our understanding of the psyche. The patient repeats these discoveries. Many interpretations of the nervous and mental diseases, which disregard unconscious processes are incomplete and afford merely an apparent motivation.

Also in other respects are individuals contented with only apparently correct motives, when they are moved to action by certain unconscious intentions. Thus, for example, are blood marriages, as well as every love choice unconsciously determined from childhood, yet a conscious justification whether sensible or senseless is always found on the basis of circumstances or personal peculiarities in the partner.

In order to be of assistance to the patient in discovering the deep sources of the illness, the analyst must gain and retain the patient's complete trust. The physician's discretion must remain unassailable. His is only the role of understanding and interpreting and not that of judge or critic. The vanity of a superior sage must be as foreign to him as the pharisaical satisfaction of the normal in relation to the abnormal. He need be neither compassionate nor cruel. In combined effort with the patient, he searches for knowledge of past and present realities from which patient has heretofore been in flight, whereas now in the interest of the cure he must hold his ground. To help him thereat is another side of the physician's function. To attain such a degree of impartiality and understanding, it is desirable that the physician himself first be analyzed.

Two achievements of psychoanalysis have called forth greatest skepticism because these involve contradiction of the established. This is dream interpretation and the recognition that the conflict between the personality and various wishes arising from the sex urge, leads to neuroses.

What is generally sought after in so-called dream books is prophecy of the future and has *no relation* to our dream inter-

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pretation. On the contrary psychoanalysis employs dreams to investigate the past. Much of what Freud has discovered in this connection was indeed in part once familiar to the great dream-science of the middle ages purely from experience. In those days there were hundreds of sincere books dealing with dreams. But psychoanalysis was first in pointing out that every dream carries with it an effective wish continued from childhood, activated according to rules of unconscious psychic activity, and representing it with the aid of impressions from the waking life through interpretable disguise and plastic imagery. The dream raises the repressed to consciousness in a distorted and disguised form.

In the dream there also appears the usually repressed sexual wishes, in the form of suggested or real fulfillment. No dream appears entirely sensible; it is closely related to morbid mental processes without, however, disturbing the mental health, it being merely an image and not an act. Dream interpretation has afforded understanding of many morbid processes.

As concerning the etiological significance of the sex urge for nervous and mental diseases, it can only be pointed out here that the normal mastery and subordination of this pleasure need characterizes the healthy individual who gratifies it in part, in part controls it and fully represses the rest. The neurotic does not succeed to that extent and for that reason he is continually under domination of the sex urge, and although it is not the only causative factor, it is nevertheless an important one. The chief aim of the treatment and one that is not to be evaded is to make the unconscious conflict conscious thereby helping the patient towards mastery of his instinctual trends and possibly advancing him towards normalcy. More difficult to understand and possible only after detailed study of Freud's works is the manner in which psychoanalysis demonstrates the contention that every psychic urge also draws strength from the sexual instinct. This psychic energy Freud calls "libido." The development of the individual as well as that of culture in general is conditioned by the force

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and application of the "libido." Psychoanalysis, therefore, is also the treatment of morbidly applied or altered libido.

To serve as proof that truly impulsive sexual wishes were bound up with the illness, is the evidence that with the cure these attain their normal expression. Sexual insusceptibility is relieved, the craving is either gratified or sublimated.

Change in the patient during treatment does not proceed without resistance; that is to say some force within him resists the cure, the need to resolve the conflicts rather than repress them. While the patient wishes, indeed, to get well and be normal, he nevertheless—against his will—senses in himself something strong and impulsive, having its origin in unconscious sources and defending itself against the cure. Nearly every patient from self-observation, speaks to the effect: that "it," within him does not wish, that "it" creates resistance, does not obey clear insight, can not renounce the morbid mode of feeling and the tendency to repression; also, that "it," wishes and brings about the peculiar. Thus has the unconscious found a popular term, the "it."

This self-generated term was first employed by Groddeck in his "Book of the Id," and was later introduced into the science by Freud in his book "The Ego and the Id."

The patient, therefore, recovers by his own insight and its application, and with it also frees himself from his dependence on many people, and false opinions, which have heretofore ruled him in an inconceivable manner. By hypnosis it was not possible to carry analysis to such depth and conclusiveness as is required in the severer cases. Psychoanalysis was first to indicate the natural process that leads to mental illness.

Single shocks (traumas) alone, even if occurring repeatedly are not necessary productive factors which are rather, development disturbances in earliest childhood.

Also the healthy individual has experienced in his early childhood instinctual tendencies, and has gone through developmental stages, not applicable in later life; he, too, had to repress these. The difference being that in the case of the healthy individual, repression was accomplished without consequence; he knows practically nothing from his childhood, and has no

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need to recall it. The neurotic on the other hand, has remained too long in a childish state (fixated) with respect to some essential functions, and impulse and feeling tendencies of a sexual nature. Therefore his personality is not adequate enough to bring about full repression. Also he knows little from his childhood. To regain his normal health, he must fill the gap in his childish development during adult life. His repressions have taken place at the cost of disturbances which we designate neuroses and character defects. Specific difficulties during childhood were responsible for miscarriage of repression in such individuals; the difficulties being in part constitutional factors, abnormal instinctual force, abnormal coordination of impulses, disparity in the ripening of the personality and the instincts. In a majority of cases fate has imposed on such children difficult tasks (unhappy marriages of parents, abnormal parents, deaths, seduction) and in this manner brought about "nervousness." The specific pathogenic germ of neuroses in an adult is always a childhood neuroses which is often construed as "naughtiness." The most significant difficulties that make the child readily neurotic will not be discussed here. Many such child neuroses indeed disappear spontaneously.

Individuals differ so from each other in character and natural endowment that it is not feasible to speak of an average or model person as representing the "normal type." Stern and mild, thrifty and wasteful, courageous and cautious, narrow-minded and broad-minded, contest with each for normalcy. Accordingly it is sufficient to classify an individual as normal when he can maintain himself without unusual help and without strong opposition to his environment and existing social order, or at least when he is capable of performance and satisfaction. There are, however, a considerable number of individuals who hover between normalcy and health on the one side, and abnormalcy and disease on the other. Correspondingly, analysis uncovers many degrees of faulty repression extending to partial and often also complete failure of repression in criminals, mentally diseased and perverts. Also diverse is the durability of repression, that is, whether in case of

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intensified affect the ethically reprehensible impulse or wish does not break through after all. The severity of neuroses also depends to a certain degree upon chance. Given ample opportunity for gratification of his impulses or wishes, there is smaller need for repression. In such a case the symptoms are bearable or the patient suffers only a mild degree of disturbance in the free exercise of his functions and independence.

Conflicts and difficulties of every sort reveal many so-called "private" neurotics and precipitate illness even in healthy but predisposed individuals. The equilibrium of healthy individuals is also largely labile, yet for its disturbance only stronger shocks are effective. The mild disturbances of otherwise normal individuals have then the same mode of origin as severe illnesses. These often afford still greater resistance to anaylsis. For, the less the individual suffers from such disturbances as for example, anxiety states, whimsicalities pedantries, so-called idiosyncracies, that is aversion for special foods, etc., the less ground is therefor overthrowing the resistance. Occupational inhibitions, disturbances in memory and attention can in the main sooner be relieved in otherwise healthy individuals. It should be noted that one-sidedness and blindness for entire phases of human life with resulting difficulty in adjustment to a given order of existence are a consequence of miscarried repression. In many such cases, cure is effected by analysis.

Then, too, the dreams of healthy individuals are soluble. Their structure is no different in the case of healthy individuals than in the diseased. The perfectly healthy individual who has satisfactorily disposed of all his repressions need not dream at all except for unusual somatic sleep disturbances. Such a state of health is enjoyed only by a minority. Practically healthy are those who can settle their inner conflicts by normal dreaming. There are individuals with many unhealthy dreams, as when accompanied by anxiety in whose waking life repression still holds without anxiety-neurosis.

As common object for analysis, both for healthy and diseased, there are minor disturbances which if interpreted reveal clearly fully unfamiliar or merely underestimated or

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unnoticed contradictions in the mind. These are the errors; forgetting of names, unaccounted for losing, misplacing, mispronouncing and many accidents.

All these processes like dreams have first become intelligible when psychoanalysis established with full precision, the fundamental principle that nothing accidental can occur to the mind, be it an association, symptom, hand movement or detail in a dream image. The chief means of psychoanalysis is by way of free association, which can now be better evaluated after all that has been discussed. If we suspend conscious direction in thinking, we can appreciate how presentations and thoughts appearing one after the other in consciousness depend upon their unconscious connections—precisely what we are looking for. These connections are not logical but rather affective, that is, determined by psychic feeling.

Therefore it is essential that analysis be carried through with care and caution. The unconscious excitations are not harmless and indifferent. As these advance towards, or enter consciousness, they may call forth transitory exacerbation. This is eyen desirable for the success of the treatment. It indicates that the procedure is moving on the right track; for the indifferent does not excite severe reactions. It is, however, possible to control the process, since in the individual associations only fragments of the repressed become conscious. In this way the anxiety or painful affect, or the impulsive excitation spread out over a long time period. It was the sum total of accumulated pain that has forced the individual into neuroses. Analysis reduces and disposes of this burden, thereby making it bearable. Thus does the psychoanalyst conduct himself like a surgeon who likewise knows that for the ultimate cure, a certain amount of temporary suffering and a certain bodily endurance are necessary.

In many cases psychoanalysis must be conducted at times in sanitoria, or where there is adequate supervision, namely, when it deals with depressive and suicidal cases. This is necessary in order to avert the danger which is inherent in such illness, since a satisfactory result can first be attained after a prolonged period of time. As a rule, a short period of proba-

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tion treatment should first be undertaken in most cases, as it often happens that a latent psychosis may be found lurking behind an apparently mild neuroses, which can readily be recognized by analysis. The probation period referred to is also indicated as a means of determining whether the patient possesses an amount of intelligence and truthfulness indispensable for analysis. Otherwise all forms of neuroses are amenable to analysis. Since the method requires a prolonged continuous daily treatment, the cases subjected to it are largely of the severer types in whom other methods have failed. There is no reason, however, for not applying it immediately as the most rational method. The younger the patient presents himself for treatment, the shorter the period required. Also children can be completely and permanently cured of their neuroses by a method of psychoanalysis suited to their intelligence and can be spared the energy waste and joylessness of youth spent in neuroses.

Psychoanalysis is a form of medical re-education which employs all knowledge of conscious and unconscious psychic life, releasing apparently lost energies and setting right again unhealthy distortions through artificial reawakening of the developmental period. Its hygienic import rests in the uncovering of causes of the neuroses; through correct guidance of children the development of neuroses can be limited.

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The Objects of Marriage

By Havelock Ellis

What are the legitimate objects of marriage? We know that many people seek to marry for ends than can scarcely be called legitimate, that men may marry to obtain a cheap domestic drudge or nurse, and that women may marry to be kept when they are tired of keeping themselves. These objects in marriage may or may not be moral, but in any case they are scarcely its legitimate ends. We are here concerned to ascertain those ends of marriage which are legitimate when we take the highest ground as moral civilized men and women living in an advanced state of society and seeking, if we can, to advance that state of society still further.

The primary end of marriage is to beget and bear offspring, and to rear them until they are able to take care of themselves. On that basis Man is at one with all the mammals and most of the birds. If, indeed, we disregard the originally less essential part of this end—that is to say, the care and tending of the young—this end of marriage is not only the primary but usually the sole end of sexual intercourse in the mammal world. As a natural instinct, its achievement involves gratification and well-being, but this bait of gratification is merely a device of Nature's and not in itself an end having any useful function at the periods when conception is not possible. This is clearly indicated by the fact that among animals the female only experiences sexual desire at the season of impregnation, and that desire ceases as soon as impregnation takes place, though this is only in a few species true of the male, obviously because, if his sexual desire and aptitude were confined to so brief a period, the chances of the female meeting the right male at the right moment would be too seriously diminished; so that the attentive and inquisitive attitude towards the female by the male animal—which we may often think we see still traceable in the human species—is not the outcome of lustfulness for personal gratification ("wantonly to satisfy carnal lusts and appetites like brute beasts," as the Anglican Prayer Book incorrectly puts it) but implanted by Nature for the benefit of the female

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and the attainment of the primary object of procreation. This primary object we may term the animal end of marriage.

This object remains not only the primary but even the sole end of marriage among the lower races of mankind generally. The erotic idea in its deeper sense, that is to say the element of love, arose very slowly in mankind. It is found, it is true, among some lower races, and it appears that some tribes possess a word for the joy of love in a purely psychic sense. But even among European races the evolution was late. The Greek poets, except the latest, showed little recognition of love as an element of marriage. Theognis compared marriage with cattle-breeding. The Romans of the Republic took much the same view. Greeks and Romans alike regarded breeding as the one recognizable object of marriage; any other object was mere wantonness and had better, they thought, be carried on outside marriage. Religion, which preserves so many ancient and primitive conceptions of life, has consecrated this conception also, and Christianity—though, as I will point out later, it has tended to enlarge the conception—at the outset only offered the choice between celibacy on the one hand and on the other marriage for the production of offspring.

Yet from an early period in human history a secondary function of sexual intercourse had been slowly growing up to become one of the great objects of marriage. Among animals, it may be said, and even sometimes in man, the sexual impulse, when once aroused, makes but a short and swift circuit through the brain to reach its consummation. But as the brain and its faculties develop, powerfully aided indeed by the very difficulties of the sexual life, the impulse for sexual union has to traverse ever longer, slower, more painful paths, before it reaches—and sometimes it never reaches—its ultimate object. This means that sex gradually becomes intertwined with all the highest and subtlest human emotions and activities, with the refinement of social intercourse, with high adventure in every sphere, with art, with religion. The primitive animal instinct, having the sole end of procreation, becomes on its way to that end the inspiring stimulus to all those psychic energies which in civilization we count most precious. This function is thus,

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we see, a by-product. But, as we know, even in our human factories, the by-product is sometimes more valuable even than the product. The hand was produced out of the animal fore-limb with the primary end of grasping the things we materially need, but as a by-product the hand has developed the function of making and playing the piano and the violin, and that secondary functional by-product of the hand we account, even as measured by the rough test of money, more precious, however less materially necessary, than its primary function. It is, however, only in rare and gifted natures that transformed sexual energy becomes of supreme value for its own sake without ever attaining the normal physical outlet. For the most part the by-product accompanies the product, thus adding a secondary, yet peculiarly sacred and specially human, object of marriage to its primary animal object. This may be termed the spiritual object of marriage. By the term "spiritual" we are not to understand any mysterious and supernatural qualities. It is simply a convenient name, in distinction from animal, to cover all those higher mental and emotional processes which in human evolution are ever gaining greater power. It is needless to enumerate the constituents of this spiritual end of sexual intercourse, for everyone is entitled to enumerate them differently and in different order. They include not only all that makes love a gracious and beautiful erotic art, but the whole element of pleasure in so far as pleasure is more than a mere animal gratification. Our ancient ascetic traditions often make us blind to the meaning of pleasure. We see only its possibilities of evil and not its mightiness for good. We forget that, as Romain Rolland says, "Joy is as holy as Pain." No one has insisted so much on the supreme importance of the element of pleasure in the spiritual ends of sex as James Hinton. Rightly used, he declares, Pleasure is "the Child of God," to be recognized as "a mighty storehouse of force," and he pointed out the significant fact that in the course of human progress its importance increases rather than diminishes. While it is perfectly true that sexual energy may be in large degree arrested, and transformed into intellectual and moral forms, yet it is also true that pleasure itself, and above all,

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sexual pleasure, wisely used and not abused, may prove the stimulus and liberator of our finest and most exalted activities. It is largely this remarkable function of sexual pleasure which is decisive in settling the argument of those who claim that continence is the only alternative to the animal end of marriage. That argument ignores the liberating and harmonizing influences, giving wholesome balance and sanity to the whole organism, imparted by a sexual union as well as physical needs. There is, further, in the attainment of the spiritual end of marriage, much more than the benefit of each individual separately. There is, that is to say, the effect on the union itself. For through harmonious sex relationships a deeper spiritual unity is reached than can possibly be derived from continence in or out of marriage, and the marriage association becomes an apter instrument in the service of the world. Apart from any sexual craving, the complete spiritual contact of two persons who love each other can only be attained through some act of rare intimacy. No act can be quite so intimate as the sexual embrace. In its accomplishment, for all spiritually evolved persons, the communion of bodies becomes the communion of souls. The outward and visible sign has been the consummation of an inward and spiritual grace. "I would base all my sex teaching to children and young people on the beauty and sacredness of sex," writes a distinguished woman of today; "sex intercourse is the great sacrament of life, he that eateth and drinketh unworthily eateth and drinketh his own damnation; but it may be the most beautiful sacrament between two souls who have no thought of children." To many the idea of a sacrament seems merely ecclesiastical, but that is a misunderstanding. The word "sacrament" is the ancient Roman name of a soldier's oath of military allegiance, and the idea, in the deeper sense, existed long before Christianity, and has ever been regarded as the physical sign of the closest possible union with some great spiritual reality. From our modern standpoint we may say with James Hinton, that the sexual embrace, worthily understood, can only be compared with music and with prayer. "Every true lover," it has been well said by a woman, "knows this, and the worth of any and every relationship can be judged

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by its success in reaching, or failing to reach, this standpoint."

I have mentioned how the Church—in part influenced by that clinging to primitive conceptions which always marks religions and in part by its ancient traditions of asceticism—tended to insist mainly if not exclusively on the animal object of marriage. It sought to reduce sex to a minimum because the pagans magnified sex; it banned pleasure because the Christian's path on earth was the way of the Cross; and though theologians accepted the idea of a "Sacrament of Nature" they could only allow it to operate when the active interference of the priest was impossible, though it must in justice be said that, before the Council of Trent, the Western Church recognized that the sacrament of marriage was effected entirely by the act of the two celebrants themselves and not by the priest. Gradually, however, a more reasonable and humane opinion crept into the Church. Intercourse outside the animal end of marriage was indeed a sin, but it became merely a venial sin. The great influence of St. Augustine was on the side of allowing much freedom to intercourse outside the aim of procreation. At the Reformation, John a Lasco, a Catholic Bishop who became a Protestant and settled in England, laid it down, following various earlier theologians, that the object of marriage, besides offspring, was to serve as a "sacrament of consolation" to the united couple, and that view was more or less accepted by the founders of the Protestant churches. It is the generally accepted Protestant view today.* The importance of the spiritual end of intercourse in marriage, alike for the higher development of each member of the couple and for the intimacy and stability of their union is still more emphatically set forth by the more advanced thinkers of today.

There is something pathetic in the spectacle of those among us who are still only able to recognize the animal end of marriage, and who point to the example of the lower animals—among whom the biological conditions are entirely different—as worthy of our imitation. It has taken God—or Nature, if you will—unknown millions of years of painful struggle to

* It is well set forth by the Rev. H. Northcote in his excellent book, *Christianity and Sex Problems.*

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evolve Man, and to raise the human species above that helpless bondage to reproduction which marks the lower animals. But on these people it has all been wasted. They are at the animal stage still. They have yet to learn the A, B, C of love. A representative of these people in the person of an Anglican Bishop, the Bishop of Southwark, appeared as a witness before the National Birth-Rate Commission which, two years ago, met in London to investigate the decline of the birth-rate. He declared that procreation is the sole legitimate object of marriage and that intercourse for any other end was a degrading act of mere "self-gratification." This declaration had the interesting result of evoking the comments of many members of the Commission, formed of representative men and women with various standpoints—Protestants, Catholic, and other—and it is notable that while not one identified himself with the Bishop's opinion, several decisively opposed that opinion, as contrary to the best beliefs of both ancient and modern times, as representing a low and not a high moral standpoint, and as involving the notion that the whole sexual activity of an individual should be reduced to perhaps two or three effective acts of intercourse in a lifetime. Such a notion obviously cannot be carried into general practice, putting aside the question as to whether it would be desirable, and it may be added that it would have the further result of shutting out from the life of love altogether all those persons who, for whatever reason, feel that it is their duty to refrain from having children at all. It is the attitude of a handful of Pharisees seeking to thrust the bulk of mankind into Hell. All this confusion and evil comes of the blindness which cannot know that, beyond the primary animal end of propogation in marriage, there is a secondary but more exalted spiritual end.

It is needless to insist how intimately that secondary end of marriage is bound up with the practice of birth control. Without birth control, indeed, it could frequently have no existence at all, and even at the best seldom be free from disconcerting possibilities fatal to its very essence. Against these disconcerting possibilities is often placed, on the other side, the un-esthetic nature of the contraceptives associated with

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birth control. Yet, it must be remembered, they are of a part with the whole of our civilized human life. We at no point enter the spiritual save through the material. Forel has in this connection compared the use of contraceptives to the use of eye-glasses. Eye-glasses are equally un-esthetic, yet they are devices based on Nature, wherewith to supplement the deficiencies of Nature. However in themselves un-esthetic, for those who need them they make the esthetic possible. Eye-glasses and contraceptives alike are a portal to the spiritual world for many who, without them, would find that world largely a closed book.

Birth control is effecting, and promising to effect, many functions in our social life. By furnishing the means to limit the size of families which would otherwise be excessive it confers the greatest benefit on the family and especially on the mother. By rendering easily possible a selection in parentage and the choice of the right time and circumstances for conception it is again, the chief key to the eugenic improvement of the race. There are many other benefits, as is now generally becoming clear, which will be derived from the rightly applied practice of birth control. To many of us it is not the least of these that birth control effects finally the complete liberation of the spiritual object of marriage.

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MEDICINE ABROAD

Medical Education in Germany[1]

Medical education in Germany and the German-speaking countries has been identified with the universities from the founding of those institutions and the close affiliation is responsible for certain characteristics of that branch of education. When the University of Prague was founded in 1348, a medical teacher was included in the original faculty. The charter of the University of Vienna in 1365 also provided for medical instruction, although lectures were not begun until 1384. Heidelberg was founded in 1386 and the medical faculty was created the following year. Until 1482, all teachers of medicine there were obliged to be members of the clergy and the employment of laymen as medical teachers was not legally authorized until 1553. Although Leipzig was founded in 1409 the medical faculty was not mentioned until 1415, at which time seven members were appointed. Rostock was chartered in 1419 with a medical but no theological faculty. Other early universities included medical faculties at the time they were founded, Greifswald (1456), Freiburg (1457), Basel (1460), Tübingen (1477), Marburg (chartered in 1529), Jena (1558), Würzburg (1582), Gratz (1585), Giessen (1607).

The first universities were private corporations, foundations of the sovereign of the land, to which were granted certain privileges including the right to confer degrees and to govern themselves. Following the Reformation, however, the universities came under the direct control of the sovereigns as insti-

[1] Prepared by the Commission on Medical Education. The number of medical students (including dental students) in Germany is as follows: Berlin, 2,277; Bonn, 1,022; Breslau, 695; Düsseldorf, 201; Erlangen, 415; Frankfurt, 529; Freiburg, 884; Giessen, 250; Göttingen, 888; Greifswald, 313; Halle, 265; Hamburg, 457; Heidelberg, 652; Jena, 387; Kiel, 446; Köln, 386; Königsberg, 449; Leipzig, 825; Marburg, 637; München, 2,158; Münster, 599; Rostock, 488; Tübingen, 557; Würzburg, 1,134; Total, 16,404.

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tutions whose primary purpose was to serve the state. After the seventeenth century, the state developed more and more into a comprehensive paternalism and even the universities lost some of their independence. The principle was generally recognized that all important needs of the community were the affair of the state whether in trade, transportation, sanitation, the care of the poor, the regulation of wages and the prices of food, employment, amusement or education. Thus the universities gradually came to be state institutions although they were protected by statutes that gave them unrestricted freedom in research and teaching.

Out of this situation developed two of the most distinctivs features of the German universities which have continued to the present time—the competition between independent principalities and kingdoms in the establishment, support and development of institutions of higher learning and the traditional freedom that those institutions have enjoyed in their academic programs. This *Lehrfreiheit,* the freedom of teaching what he believes, has become inseparably identified with the privileges of the university teacher. Associated with it is the freedom of the learner, *Lernfreiheit,* which is in sharp contrast with the rigid, severe, prescribed courses of he several *Höhere Schulen.* The student in the university selects his own instructors and the lectures and courses which he attends. He is at liberty to attend none if he chooses. The function of the University is to provide opportunities for learning and students are free to take advantage of them or not, as they wish. There is no compulsion in the order, choice or duration of the studies to be pursued except for the requirements of the different examinations.

The medical faculty as a part of the university has complete freedom in research and teaching but must comply with the regulations of the state which are intended to insure that the training of physicians is adequate. In the medical course, the student is in theory free to arrange his courses, choose his instructors and attend exercises as he wishes but a minimum course of studies is prescribed legally for admission to the qualifying examinations and the schedule of examinations determines in a general way the order of subjects to be taken.

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The general plan of medical education and examination is governed by the *Prufungsordnung fur Artze* and the *Studienordnung* which are issued by the Minister of the Interior of the Reich. In this Ministry is a Department of Medicine dealing with various health problems, including the requirements for medical education and licensure. All proposed changes in the medical curriculum or regulations dealing with medical education are submitted to representatives of the nine *Hochschulländer* and to the faculties of the twenty-three medical schools before the proposals are embodied in the requirements.

Any student who is admitted to a university in Germany may study medicine. The plan of education leading up to matriculation in the university may be stated briefly as it has an important bearing on the preparation of students for the study of medicine.

PRIMARY AND SECONDARY EDUCATION: At the age of six years every child enters the *Volksschule* and remains there for four years. These four years, according to the new constitution of the German Reich, are the basis of all subsequent education. At the completion of this four year elementary course the pupil may continue in the *Volksschule* for four more years, at the end of which time he may enter one of the various forms of vocational and commercial schools. As an alternative, he may enter one of the *Höhere Schulen* or the *Mittelschule.* About 85% of the pupils follow the first course and remain in the *Volksschule,* about 9% enter one of the *Höhere Schulen* and prepare for university matriculation and the balance enter the *Mittelscule.* Students who continue in the *Volksschule* may transfer later to an *Aufbauschule* and gain the privilege of entering a university if they pass the required examinations.

Matriculation in the university is obtained ordinarily by graduation from one of the *Höhere Schulen* of which there are four different types, the *Gymnasium,* the *Realgymnasium,* the *Oberrealschule* and the *Deutsche Oberschule.* All provide a nine-year course and have as their purpose the preparation for later university training. The *Gymnasium,* which is the oldest type, aims at a classical training and in it the most important subjects are Latin and Greek. With the rapid development of

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technical methods, mathematics and the natural sciences, the curriculum of the original *Gymnasium* has been somewhat modified in the *Realgymnasium* and the *Oberrealschule*. The former is a more classical school with Latin but no Greek and with emphasis on modern languages and mathematics. The latter emphasizes particularly the natural sciences without the requirement of either Latin or Greek. The fourth type, the *Deutsche Oberschule,* is a development in the educational plan since the war and promises to grow in importance. It requires only one foreign language, English, during the first five years. It stresses particularly the German language and German history and culture. The latter part of the course requires a second foreign language, either Latin or a modern language.

At the end of the nine year courses provided in these several schools the student must pass an examination known as the *Abitur* which qualifies him for matriculation in a university or professional school. This examination is usually severe and insures a high degree of selection at the university matriculation. Every student of medicine has passed the *Abitur* and they all start from this common point. The small proportion of students in the secondary schools who go through the various *Höhere Schulen* and are able to pass the rigid final examination tends to insure a student body in medicine that is more mature and more disciplined intellectually than is the case in most countries. The content of the preparation is widely different, however, depending upon which of the *Höhere Schulen* the student has attended. The work required for the *Abitur* corresponds rather closely to that of the first two years of college in America. Under ordinary circumstances the student reaches the university at about nineteen years of age.

Secondary education in Germany and on the Continent in general has been a highly selective process and has been regarded seriously by authorities and parents. Success in school and university has been very important in securing social prestige and official standing. Since the war, however, there have been important changes in the primary and secondary schools in Germany tending to remove the differentiations rather clearly defined in the past and to open all schools to the

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general public. The new German school law has ordered the suspension by 1930 of the special preparatory schools maintained for the well-born and the well-to-do and has consolidated education of all children up to the tenth year. It is claimed by many that the program is lowering the standards of the *Gymnasien* in which most of the medical students have been prepared, with the result that the student body in medicine is less well educated than formerly and many students are entering medicine now for vocational, financial and social opportunities.

THE MEDICAL COURSE: The regulations promulgated by the Minister of the Interior are binding on all the medical schools in Germany, hence the required lectures and courses are uniform throughout the country. It is not possible for a university to depart from the prescribed plan of study but the individual universities have a certain amount of latitude in carrying out the details and in providing electives. Inasmuch as the required courses are uniform a student can move from one university to another without delaying the accumulation of a sufficient number of certificates of attendance to meet the requirements for the examinations. In most of the courses no actual check is kept on attendance in the prescribed courses but the student must sign up and pay for each course prescribed. He attends or not as he wishes. The certification of attendance does not represent actual attendance but signifies the payment of the fees for the courses.

THE MEDICAL EXAMINATIONS: Although any student matriculated in a university may study medicine, he may not take the first medical examination before he has submitted evidence that he has spent at least five semesters in a university and certificates that he has attended the courses and lectures that are prerequisite for that examination.

The regulations require the student of medicine to pass two examinations. The first is known as the *Physicum* which is conducted at every university under the auspices of a local commission of teachers usually made up of the full professors, the *ordinarii*. Candidates are supposed to be examined in groups of not more than four, but in some of the larger centers like

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Berlin and Munich the groups are sometimes twice that size. The examination lasts about four days, two days being spent on anatomy, gross and microscopic, one on physiology, including physiological chemistry, and one on general chemistry, botany, zoology and physics. The questions are not difficult. Should the student fail to pass in any subject he is allowed two more trials, usually within a year. About 80% of the students pass at the first trial. Theoretically a student is not allowed more than three failures, but in practice it is very rare for a student not to pass at the third endeavor. Even if he fails on the third attempt, he can make arrangements for further examinations. The tests in anatomy, physiology and chemistry are both theoretical and practical. Those in physics, zoology and botany are theoretical only. The student may take the courses in any order he desires, when and where he chooses. If he has had physics, chemistry or botany before coming to the university he must still sign up for the required courses in the university and take the examinations.

The second examination covers the clinical subjects and pathology and is known as the *Staatsexamen.* The student is not allowed to take the examination until after eleven semesters of attendance in one of the medical schools, six of which must be after passing the *Physicum.* He must present certificates of attendance in the required subjects of medicine, surgery, obstetrics, psychiatry and ophthalmology before he is eligible for the examination. In addition, he must present certificates of attendance to specified clinics of medicine, children's diseases, nose and throat, ear and skin diseases and lectures in pharmacology, legal medicine and vaccination. No examinations in these subjects are given, however. He is not required to present certificates of attendance in pathology and hygiene but must stand an examination in those subjects.

The student ordinarily takes the examination in pathology before that in the clinical subjects. The pathology examination lasts about two days. The student is called upon to demonstrate his ability to make a post-mortem examination, usually doing one part of the body during a regular autopsy and writing a protocol. He must make several microscopic prepara-

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tions, discuss one or more of them and is subjected to a quiz on the subject of pathology.

The schedule of examinations in the clinical subjects is rather formidable and extends over a period of about eight weeks for each student. The examination in medicine usually takes about a week. The candidate is required on two successive days to examine a patient on the ward, take the history, make the diagnosis and suggest treatment. He writes up each of the two cases and hands in the reports the following day. During the following week, he must visit the patients once a day or more often and write up daily notes on progress, special determinations, treatment, etc. At the end of the week he is given an oral examination and must demonstrate at the bedside his grasp of the problem which the patient presents. This may include extensive questioning regarding therapeutics, special findings and other features for which the patient serves as a text. A second part of the test consists of a written paper on therapeutics, prescription writing and an oral quiz in pharmacology.

A similar plan is followed in the examination in surgery. The student works up cases on the ward, usually one or two, and follows these patients for a period of about a week, at the end of which time he is examined in a similar way. The second part of the examination consists of an oral quiz on the principles of surgery and an assigned operation on a cadaver. The third part is a practical test in bandaging and minor surgery, and the fourth part is on topographical anatomy. The examination in obstetrics and gynecology follows the same general plan and is clinical as well as theoretical. The examinations in ophthalmology and psychiatry are usually conducted in one or two days in much the same manner as those in the other clinical subjects.

Although the required courses as laid down by the regulations of the Minister of the Interior may not cover every phase of medical training, the students know that in the examinations they may be called upon for many details of laboratory or clinical experience. This knowledge stimulates most of them to do considerably more than the minimum requirements, particularly in the clinical subjects.

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Successful completion of the *Staatsexamen* conveys the title of *Praktischer Arzt,* but every student must spend one year in a hospital before he is permitted to practice. This feature of the training will be discussed later.

The clinical examinations extend over a period of months and represent a considerable load on the faculty. There is an almost endless number of candidates presenting themselves for examination. Meanwhile, the professors (who conduct the examinations) must carry on lecturing, investigation, clinic and ward work, write papers, attend conferences and see their private patients. The examinations must accomodate themselves to a certain extent to the convenience of the professors. They are scattered throughout the term and are fitted in as best they can be. They are likely to be hurried, crowded and in some instances rather lax, for judgment against a student under such circumstances is likely to be made only in extreme cases. The student gets the benefit of any doubt about his achievement. The paucity of required practical courses explains in part the extent of cramming and coaching courses, which constitute quite an industry in some of the larger universities. Furthermore, students being examined on patients in the wards have the opportunity to get a good deal of information about the patient assigned to them for the examination.

The detailed specifications of the state regarding these examinations cannot, in the nature of the situation, be enforced completely. Much depends upon the individual examiners. Certain examiners are known to be lenient and students rather commonly plan to take the last semester before their examinations at schools where such examiners are on the faculty. This is said to be one of the important factors in the migration of students. It is offset by the desire of the better students to pass the examinations in the clinical subjects especially in one of the large universities because by so doing they may have better opportunities for clinical experience after graduation.

THE UNIVERSITY CALENDAR: The university year is divided into two semesters. The summer semester extends from the middle of April to the last of July and the winter semester begins about the middle of October and extends to March. The

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required lectures start about two weeks after the opening of the semesters which means that the courses are concentrated in two periods of not much more than three months each. During those semesters the scheduled courses account for about five hours each day except Saturday, although in practice students attend even the required courses as they choose. The primary reason for the short semesters with concentration of the required lectures is to free as much consecutive time as possible for the faculty in which they may devote their time to research. The long vacations provide opportunity incidentally for the students to take their practical courses and to get some experience in clinical work.

THE PRE-MEDICAL SCIENCES: The courses in physics, zoology, botany and chemistry are in the philosophical faculty as a rule. The student attends lectures in these subjects during the first two or three semesters when he is also studying the medical sciences. The latter press for time and instruction in the former takes the simplest form possible, almost entirely lectures and demonstrations. Only in chemistry is a practical laboratory course required. In the other subjects, short courses of selected experiments are offered, usually in the semester following the lectures, but very few students take them. All medical students are required to take the courses even though some have already had a more satisfactory course in one of the *Höhere Schulen.* This requirement is usually ignored except for the payment of course fees which are necessary for certification. The instruction in the preliminary sciences is brief and superficial, and must be supplemented by drill-masters and quiz-compends for the examinations. Dispersion of the basic sciences through the early semesters of the medical course proper and the freedom that the students have in arranging their schedule tend further to nullify the usefulness and serious content of the basic sciences.

The lack of a sound preparation in these sciences seriously handicaps instruction in physiology, pathology and subsequent subjects and most students are immediately at a great disadvantage. To help correct the defect, short elective courses in medical chemistry and medical physics are provided in some

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of the schools to which students may go in the vacation periods or try to attend during the regular short semesters, possibly by cutting other courses of an already crowded schedule.

THE MEDICAL SCIENCES: Anatomy is begun the first semester. Dissection is carried on only in the winter sessions. Lectures are scheduled for an hour each day of the week and dissection for three hours each afternoon for five days a week during two winter semesters (420 hours of dissection). A laboratory course of one semester in histology is also required and elective courses in neuro-anatomy, modelling, topographic anatomy and allied topics are provided. Usually the electives are well attended.

The lectures are demonstrative in character, the assigned textbook recitation is unknown in any medical subject in Germany. The general course covers the entire field of anatomy, supplemented by charts, models, cross-sections, lantern slides, museum specimens, special dissections, photographs, and in some places by an assistant who dissects under a reflectoscope which throws the dissection on a screen as the professor lectures. The student is largely on his own in the dissecting room and must work out his own problems. In many places there is a shortage of anatomical material, owing in part to the activities of the burial societies which provide a professional funeral for anyone who makes weekly contribution to one of these societies—thus depriving the medical schools of some of its anatomical material. Furthermore, many of the bodies available for dissection are not entirely satisfactory because they have been autopsied. In the larger schools like Munich and Berlin, more than 1,000 students under the supervision of seven or eight instructors dissect simultaneously, about ten first year men and twenty second year men to a body. As many as 25 students must study one brain dissection because of the shortage of material. In the larger schools, demonstration is coming to replace actual dissection by the student owing to the inadequate staff and the shortage of suitable anatomical material.

The required teaching in physiology is confined to the lecture (two semesters) and the practical exercise (one semester) and usually includes histology. The former is a compre-

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hensive, systematic and philosophical presentation of the subject accompanied always by demonstrations which have been carefully prepared in advance to illustrate various points under discussion. The exposition is orderly and carefully worked out. It affords a clear, scientific presentation of the subject by a master in the field. When seen at its best it is difficult to see how the exercise itself could be improved.

The practical course, however, is far from satisfactory. Most of the students never get an adequate laboratory experience. Very few of the students have had any laboratory work in the preliminary sciences upon which much of physiological experimentation is based. The laboratory course is almost always conducted by some assistant in a semester subsequent to the lectures and no correlation can be made between it and the theoretical lecture work. The equipment and facilities for teaching students is very meager in practically all schools and often only one or at most a few pieces of apparatus is available for each experiment. The result is that in a given laboratory period, a dozen different experiments are being conducted simultaneously. Owing to the lack of previous training on the part of the student and to the absence of sufficient equipment for whole class exercises, many of the laboratory periods resolve themselves into informal demonstrations by the assistant, not infrequently repetitions of lecture demonstrations of the previous semester. A syllabus for the practical course is available but the directions are so detailed and carefully worked out that the experiments even if done by the student are merely mechanical performances with no element of surprise or variability. Owing to the high cost of animals, very little experimental mammalian work is even attempted. The few experiments that are performed are of the simplest type. In some of the smaller schools, conditions are better and the whole class may work on a single experiment, which permits orderliness in the experimental work.

Students not infrequently take their lecture courses and the laboratory work in physiology in different schools. The latter is often taken in the smaller schools to which the student may go for his *Physicum,* where it is known that the laboratory

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course is better and the examination is reputed to be easier. Although the lecture courses are required, not more than 50% of the enrolled students in some of the larger schools attend them.

The teaching in pharmocology is almost entirely by demonstrative lectures. No examination is required in pharmacology but students must present certificates of attendance on the lectures.

PATHOLOGY: In pathology, the student is not required to present certificates of attendance on any course of lectures, demonstrations or laboratory work. He gets his knowledge and experience without prescription of any form but must pass an examination in the subject, as mentioned earlier. He may present himself at any time for this test, possibly without having had much preparation for it. Most students, however, attend systematic lectures on the subject or have a brief experience as *famulus* (student volunteer).

The lectures in general and special pathology are given during the sixth and seventh semesters, the former dealing with general problems of disease and the latter with the pathology of individual organs. In these lectures abundant illustrative material is presented — museum specimens, fresh material, slides, charts, photographs and lantern slides—all of which may be examined by the students at the end of the lecture. An elective course in microscopic pathology is always provided but usually only a few students take it.

The autopsy is the most important feature of the instruction. The courses mentioned above are designed to prepare the student for this part of the instruction. A course in post-mortem examination is given in which the professor systematically demonstrates and describes the findings and discusses the pathological principles involved. Small groups of students attend autopsies and are given opportunity to do part of the work. Later in the course, cases demonstrated clinically which come to a fatal termination are used as a text by the pathologist, who does a post-mortem in the presence of the class and the clinicians. The autopsy material is abundant and the professor of pathology is in every school the pathologist to the teaching hos-

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pital, assuring the highest degree of coördination for teaching. There is very little experimental work being done in pathology, however, except in a few centers.

In addition to the usual courses suggested above, most of the universities provide elective courses in pathological chemistry, experimental pathology, pathology of special organs, bacteriological work, neuropathology and allied fields. The student volunteer, *famulus,* can arrange to participate in the work of the department either during the regular semester or during the vacation and obtain thereby a rich experience with unlimited opportunity to utilize the abundant material.

HYGIENE, LEGAL MEDICINE, TROPICAL DISEASES: Hygiene, like pathology, is not a required course but an examination is given in it. It is of recent origin as a separate institute in the faculty. The subject covers the usual features of sanitation, water supply, sewage disposal, industrial hygiene, contagious diseases and similar topics. The feature of most institutes is the bacteriological work, including animal studies. The course in bacteriology is ordinarily given in the institute and consists of demonstrative lectures and an optional laboratory course (largely observational in character). There is usually no adequate provision for student work, however. Special courses such as military, school, social and industrial hygiene, immunology and parasitology for advanced students and physicians are common.

Only attendance on courses in legal medicine is required. These courses cover a wide range of medicolegal questions, involving causes of sudden death, coroner's cases, stillborn infants, deaths from abortion, the medical aspects of criminal procedures, etc. The professors of legal medicine serve as expert witnesses and advisers to the courts.

Special institutes such as that for tropical diseases at Hamburg are found at a number of the universities. In the splendidly equipped institute at Hamburg are provided all necessary facilities for the study and treatment of tropical and ship diseases, including well equipped wards, isolation units, laboratories and extensive animal quarters. That institute houses a remarkably fine museum containing samples or models of

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camps, housing, sanitation, insect protection, mosquito control, clothing and other features of life in the tropics, a complete collection of parasites and organisms of the tropical diseases and a large library, lecture room and other facilities. Institutes for the history of medicine, for medicolegal subjects, for the study of neurology and other special subjects are scattered throughout the country.

CLINICAL TEACHING: The characteristic feature of clinical instruction is the non-systematic demonstrative lecture, first begun in medicine and surgery in the sixth semester and followed by similar lectures in all the clinical branches. The general plan of the lecture is similar everywhere and in different subjects. A patient serves as a text and the professor lectures in an arena to a large audience made up of students at every stage, graduates and staff. At the beginning of each lecture, two or more students who have signed up and paid for the course are called to the arena to serve as *praktikanten*. Their function will be discussed later. The history is read by an assistant and the laboratory findings, X-ray studies, metabolism or other determinations are presented by other assistants. Then the professor points out and may be able to demonstrate to the assembly the physical findings with which he has become familiar just before the lecture. A discussion of the significant findings, differential diagnosis and diagnosis follows. In the clinics for more advanced students, a discussion of prognosis and treatment is also included.

Using the patient presented as a text, the professor launches into a historical, philosophical discussion of the entire topic suggested by the problem presented, including references to literature and various theoretical considerations. The discussion is supplemented by the exhibition of slides, specimens and charts. The general level of the discussion is high, the professor is usually well acquainted with the literature and the work done in each field. The attentive listener sufficiently trained to appreciate the references and facts cited gets a splendid perspective and a considerable degree of orientation in the problem presented when the patients are thoroughly worked up for the purpose of the clinic. The aim of this procedure is to present

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to the students an object lesson in scientific clinical methods. The professor is a master of his subject and concentrates his energy and thought on the lectures. The amphitheatre clinical demonstration provides an opportunity for him to influence and stimulate a large body of students.

The demonstrative lectures, however, are not supported by other exercises which would insure the maximum benefits from them. The clinics are not well differentiated for various stages of student preparation, except the propaedeutic and introductory clinics. Any student may attend the clinics, usually some from every stage in training and graduates as well are present. Little effort is made to distinguish elementary from advanced instruction. To correct the situation, elective introductory clinics are provided in many places. Most of the students have had little or no experience in examining patients, taking histories or making laboratory determinations and much of the clinical presentation is quite outside their personal experiences, hence it is theoretical and remote. Even the courses in medicine requiring certificates do not include individual training in physical diagnosis. Those in surgery do not include instruction in bandaging, for example.

The highly theoretical character of the required training in Germany has been mentioned before. Very little of practical experience is prescribed. The technique of laboratory work or physical examination cannot be mastered by looking at patients or listening to a learned exposition. The senses cannot be trained by demonstrative methods but only by direct personal experience. The required German training is distinctly a passive process. It is also discontinuous and fragmentary for the lectures are non-systematic. The students usually never see again the same patients that are demonstrated to them, and seldom make an effort to try out the experiments referred to in the lectures in the sciences.

To offset this glaring defect in the plan, however, certain features should be mentioned. Most important are the final examinations discussed earlier which include enough practical work (at least clinical) to stimulate most students to secure voluntarily some training and experience.

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SUPPLEMENTARY COURSES: Courses are offered by assistants in physical diagnosis, in the examination of sputum, urine, blood and other body fluids and excretions, in bandaging and minor surgery and in the manipulations of the manikin in obstetrics, as illustrations. Usually the instruction is in groups of about twelve students, sometimes as many as twenty-five. The fees for these optional courses are an important part of the income of the younger members of the staff. The clinical material is abundant and the competition among the instructors is keen enough to produce good teaching for those who take these courses—most students take some of them. These courses are usually taken by students after, not before, the clinical lectures. They help to correct the inadequacies of lecturing but still do not provide a systematic or thorough experience with clinical problems.

PRAKTIKANT: A certificate of attendance to a required lecture course cannot be issued unless the student has served as a *praktikant,* a requirement aimed to offset the wholly theoretical type of teaching provided by the lecture system. Usually two or three students are called to the arena. They are supposed to question and examine the patient, suggest a diagnosis, propose treatment and then be quizzed by the professor. But the student has had very little experience in physical diagnosis and history taking. He must formulate an opinion in great haste before an assembly of 100 to 300 persons and often the patient is a difficult (meaning an interesting) problem. The hopelessness of this as an educational procedure is apparent. The professor usually asks one or two questions and then begins to present the case himself, with the *praktikanten* edging into the background. This is not a substitute for practical instruction.

FAMULUS: The long vacations provide opportunity for the student to serve as *famulus* or student volunteer in the hospital or out-patient services. About three-fourths of the students obtain their practical experience in non-university clinics throughout the country. During the regular school session, he may serve as a *famulus* but only if he cuts many of the lectures which fill most of the day. Probably most students serve a

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period as *famulus* but the work done varies a great deal and is uneven and uncertain. It seems clear that only a few receive anything like a sufficient first-hand experience in dealing with clinical problems. Much, of course, depends upon the student and the assistant in the clinic to which the student goes. Since the introduction of the intern requirement, the opportunities of the *famulus* have been somewhat curtailed. The *famulus* suggests the English clinical clerk but only in theory for the latter has a definite place in instruction, a definite relationship to the hospital, the usage applies to every student and the experience covers all the major phases of clinical work.

At no stage in training is the student required to have actual experience in the wards of a hospital. He has possibly had some training in physical diagnosis but only as a member of a group of perhaps ten or twenty to whom physical signs have been demonstrated in one of the optional courses. The clinical visits, somewhat like the ward walks in England, are optional and usually not attended by the students, partly because the discussion is designed primarily for the assistants and house staff.

The comments apply in general to teaching in surgery, obstetrics and other clinical branches. In most places, the surgical clinics are operative, usually dealing with the common surgical procedures such as amputation, herniotomy, appendectomy, thyroidectomy, etc. But the difficulty lies in the fact that practically none of the students can actually see anything. The value of such exercises is small. In a few schools, the surgical clinics are diagnostic only and of real value. Optional courses in bandaging and in surgery on the cadaver are offered by assistants. No operative courses on animals are provided. In obstetrics, numerous optional practical courses are given by assistants. Some students serve as *famuli* and all must participate in at least four deliveries. The training in obstetrics for most students is not satisfactory.

The other clinical subjects are also presented largely as demonstrative lectures. A great variety and number of electives are provided in every clinical field. Most teaching in therapeutics is by special elective courses. The regular clinical lectures are devoted particularly to diagnosis.

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OUT-PATIENT TEACHING: Each student must present certificates of attendance in all the important out-patient services although he is not required to stand a separate examination in each subject. The final clinical examination may be expected, however, to touch on any feature of the case used for the examination and students are likely to attend the polyclinics rather conscientiously because they offer the only regular opportunities during the medical course proper for experience with individual patients. As mentioned earlier, the student is not permitted freedom to examine ward patients individually except as a *famulus* and then usually in vacation in some non-university hospital. In the polyclinic, the student sees new patients, takes histories, makes physical examinations, does the ordinary clinical laboratory work and prepares his opinion, all of which are checked by one of the assistants. This general plan is followed in all the clinics.

MIGRATION OF STUDENTS: The migration of students in Germany is characteristic. Most of them take their medical training in several, sometimes a half-dozen, different schools. This is possible because of the uniformity in the required medical course and the fact that the essential requirements are specified lectures and certificates of attendance on certain clinics. Moving from one city to another does not halt the collection of the certificates, particularly since the student can take the surgical courses of the sixth, seventh, eighth and ninth semesters at one time in the seventh semester in one city, for example, and the required medical courses of four or five semesters in the eighth semester in another city. It is frequently alleged that the students move from one city to another to secure advantages in instruction in certain subjects which may be particularly well done in certain places. There is very little to substantiate this claim except in the case of a few clinical men whose reputations attract students. The average student usually has no way of learning of the reputation or ability of teachers in the sciences and little opportunity to learn the clinicians. Conversations with professors, students and assistants make it clear that other motives explain the free interchange of students. They move about to see different parts of the country and the large cities,

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for seasonal sports, for art or climatic reasons, for clinical opportunities and a considerable number to take their laboratory work and last semester before the examinations in a school where the examinations are known to be easy.

REPETITION OF COURSES: Most of the required courses are demonstrative lectures and a student is expected to learn largely by listening and looking on. If he is not satisfied with attending a series of lectures once, he signs up again or just goes to the lectures without that formality. The number of subjects in which he is to be examined and for which he must present certificates of attendance is so large that the attendance on those courses combined with repetition of previous courses and attendance on others in advance fills the student's day, although he may attend only a part of those for which he has signed up. The required lectures occupy about five hours a day but they can be worked off in about four years, leaving the fifth year almost free for repetition of courses and for lectures that are not required, possibly some in non-medical subjects. Furthermore, students may register and pay for several courses at the same hour in different years of the course. All of these factors make the student schedule overcrowded, fragmentary and thoroughly mixed. Thus a student may be signed up for and attend some of the exercises in each of the following subjects in a single semester (the eighth, for illustration):

Medical Clinic (also lectures of vii, ix, x semesters)
Surgical Clinic (also lectures of vii, x semesters)
Psychiatry (also lectures of ix semester)
Otology (Clinic of x semester)
Dermatology Clinic
Topographic Anatomy
Pathology (also lectures of vi, vii semesters)
Infant Care
Obstetrics (vi, vii, x, xi semesters)
Bacteriology (vi semester)
History of Medicine
Legal Medicine
Hygiene
Pathological Physiology

FEES: The method of paying for instruction is at the root of some of the difficulties in Germany. Students pay fees for

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each individual course, the large proportion of which goes to the professor who gives the lectures. A considerable proportion of his income is derived from that source. That fact, while it tends to insure the continuance of a high standard in the lectures because of competition with other lecturers in the same or other institutions, introduces serious obstacles to overcoming the overemphasis on lecturing and to the introduction of more practical courses which of necessity must be given in small sections. Proper instruction cannot be given in large classes but the control of student fees by the *ordinarii* prevents increasing the staff to provide adequate instruction. The present system leaves control of the required teaching program in the hands of the university aristocracy, the *ordinarii,* who receive the financial benefits of the large attendance at the theoretical lectures and they are not willing to surrender those financial advantages.

The fees paid by students range from 3.5 to 5.0 marks per lecture hour (one hour a week for a semester). Additional fees are paid for the optional courses in the laboratory and clinical subjects. The fees for these vary greatly. The usual cost of training is estimated at 250-300 R.M. per semester for the science subjects and 300-350 R.M. per semester for the clinical subjects. If the *Collegiengelder* of a professor exceeds 6,000 marks a year, the state takes fifty per cent above that figure as a surtax.

The student fees represent a considerable proportion of the income of the professors in the science subjects. The clinical professors, on the other hand, receive a lower proportion of their total income from this source because of fees received in private practice, which are usually greater than the university salaries and student fees combined. One of the chief advantages of a clinical professorship is the large opportunity for lucrative private practice. It is common knowledge that many of the largest incomes from private practice in Germany are made by the university professors and that knowledge is a strong incentive for some of the younger men to remain in university positions.

STUDENT RESPONSIBILITY: A very characteristic feature of the German medical training is the responsibility placed on

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students for their own education. The professors do not burden their conscience or time with instruction of individual students. The latter must get their practical instruction on their own responsibility, usually from assistants or in non-university clinics. In the secondary schools, the student must learn his assignments or drop out. In the university he learns as much or as little as he chooses or is able to acquire. The university takes no responsibility for teaching the individual student, its obligation ends with providing opportunity for him to learn. It is interested primarily only in the superior, conscientious, self-reliant student to whom every encouragement and reward is offered without imposing undue burdens on the others. The economic and social pressure of the struggle to make a livelihood and the opportunities which are restricted to university graduates in later life operate as strong factors, however, to stimulate students to serious effort and the universities evidently feel justified in providing opportunities for only those who are eager and able.

RESEARCH: Research permeates the whole atmosphere of the medical school, the clinics no less than the laboratory departments. The student is exposed constantly to the attitude of investigation, he is stimulated on every side by references to unsolved problems, by theories advanced to explain phenomena, by references to the literature, by contact with men who are on the borderline of unexplored fields of knowledge—an environment of ideas which cannot help but be an important influence on the more seriously minded students. The large weight given to research in the selection and promotion of professors naturally stimulates the ambitious younger men in the faculty to talk, think and do research. Students come in personal contact with these instructors more than they do with the older men and cannot avoid hearing at least about investigative work and the great part which it plays in professional recognition and success.

The medical school professors are university professors in fact as well as in theory. Recognition, promotion and calls to other posts depend largely upon scientific production. In the selection of professors, consideration is given also to the charac-

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ter and importance of positions held by candidates. Practically always a man must spend a period of time and distinguish himself elsewhere than in the university from which he graduated to be eligible for a professorship in his own university. The calling of professors from other universities is influential in curing local inertia and in-breeding.

In the past, many of the professors in the clinical subjects were recruited from those trained in the medical sciences but clinical experience, investigation and teaching now are considered more important and most of the professors in those departments are now being selected from clinical departments. Healthy competition and rivalry exist among the professors, among the ambitious body of assistants and among the different universities which have given to medical training a strong emphasis upon scientific endeavor. The emphasis is so strong, in fact, that it puts quantity of output and priority of claims in some instances above the quality of the work and the soundness of the ideas, which has led to a good deal of superficial and unreliable work. During recent years the financial, political and social rewards incident to a reputation in the clinical departments particularly have led to exploitation, the surrender occasionally of the finer traditions of university medicine and serious interference with fundamental research.

ORGANIZATION OF FACULTY: The characteristics of German medical education are due in part to the plan of organization of the German universities. Each of the sciences has its own *Institut,* normally in close proximity to similar institutes in the other sciences. At the head of the *Institut* is the professor who really has two distinct functions, that of teacher in the university and that of director of the institute. In the former capacity he has the definite responsibility of teaching the students according to the conventional and required courses. But as director of the institute he has full academic freedom with very little in the way of prescribed duties or responsibilities to anyone. He is free to work on any problem and to be as unconventional in his methods and ideas as he wishes.

Although there are differences in size and productive output of the institutes, they all are essentially alike in facilities,

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equipment and organization. Each is a unit with its own lecture rooms, equipment for demonstrations, preparation rooms, laboratories for students and advanced research workers, library and museum. Each has its own staff and carries out the instruction of students and its research quite independently of the other institutes in the same university. The institutes of the medical sciences are usually in the neighborhood of the clinics and hospitals. The physical proximity allows the students to go between the different laboratories and clinics with small loss of time.

The *Klinik* corresponds closely in conception to the *Institut* of the sciences, it is looked upon and organized in the same manner as the laboratories of the institute are. Each has its own laboratories, teaching amphitheatre and equipment, assistants of various grades, library and record room and carries on its own functions independently of other clinics or the institutes. As in the institutes, great emphasis is placed upon research in the clinical divisions. Recognition and promotion depend largely upon productivity.

Owing to the isolation of each institute in the university, there is ordinarily no effort made to correlate the work of the different subjects. In a few places such an effort is made, but even in such instances the correlation is loose. In one university, the departments of anatomy and physiology had worked out a correlation of lectures for three full semesters—no effort had been made to relate the practical courses, however.

INTERNSHIP: To help offset the theoretical character of medical teaching and on pressure from the medical profession, a practical hospital year after graduation is now obligatory for medical practice. It has not met the situation for most students have had no experience with patients or laboratory work and are not equipped to assume responsibilities for the care of patients. If the practical hospital year is to be effective in correcting the defects in the medical training it will have to be reorganized and the intern will have to be given duties and opportunities to secure practical experience and be included as a part of the hospital organization for the conduct of the wards and out-patient services. At present he does not even reside in

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the hospital ordinarily. The assistants are reluctant to surrender their traditional place or their opportunities for clinical experience. As a result, the present position of the *medizinal praktikant* in the hospital organization is not very satisfactory and at best corresponds with clinical clerking.

HIGHER DEGREE IN MEDICINE: Any graduate is eligible for the university degree of M.D. The examination for this is given after the *Staatsexamen* and is usually only a formality. A thesis is required and the candidate must submit to an oral examination on it before a committee of the faculty.

THE FACULTY: The faculty is made up of three classes of instructors.—*ordinarii* or ordinary (full) professors, the *extraordinarii* or extraordinary professors and the *privatdocenten*. The first is the officially appointed incumbent of a faculty chair and the official representative of his department. The second is an appointed official of the state but has no seat or vote in the faculty and takes no part in examinations or other functions of the department. There are a few honorary professorships which provide opportunity for scholars of conspicuous merit who do not hold a university appointment to participate in instruction. The *privatdocent* is permitted but not engaged to lecture and conduct exercises but usually participates actively in the teaching program, especially in the supplementary courses.

THE PRIVATDOCENT: The *privatdocent* is probably the most important feature of the organization for he devotes himself to research, teaching and the care of patients. The extraordinary professors are usually chosen from the *privatdocenten*. The full professors usually have been extraordinary professors.

The *privatdocenten* represent the best of the younger men, not over 2-3% of the student body. They are very superior persons with splendid training and have been in active research work for a number of years. Usually their training has not been confined to one phase of a subject but has included all of its important subdivisions. The assistants in medicine, for example, are in charge of clinical services in the hospitals and rotate through the various wards to avoid specialization, spend-

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ing six months in charge of each (heart, lung, metabolism, nervous, blood diseases, etc.). They are obliged to become competent in cystoscopy, electrocardiography, X-ray, chemical laboratory and other diagnostic and therapeutic procedures. Their research work may be confined to one field while they are obtaining a broad clinical experience. The assistants, not the interns, are responsible to the chief of the staff for the care of the patients, an arrangement of value to the assistant, of course, but to the disadvantage of the intern training. This plan insures that the patient is under the immediate and constant supervision of an experienced physician. The assistant lives in the hospital, receives a small salary and collects fees for optional courses and for insurance work, and may do some private practice.

In recent years, there has been a tendency for the assistants to live outside the hospital and to do some private practice. This is partly due to the compulsory internship which has been used in some instances to relieve the hospital of the salaries of assistants. It also serves as a protection for the assistant. If a professor leaves a post to go to another university, he may not take all his assistants with him and the new appointee may bring his own assistants. A number of the assistants now attempt to protect themselves partially by having a modest beginning in private practice. The general economic conditions developing out of the post-war deflation have accentuated this tendency.

The growth of national health insurance, to be discussed later, has had certain influences on medical education and has affected the assistant particularly. There are many disputes over insurance patients and an increasing number of such patients are being sent to the university clinics for study and opinion. The clinical diagnosis itself may not be difficult but such referred cases must have a good deal of study. They all require exhaustive reports in the nature of authoritative opinions with review of the literature to support or disprove the relationship of a given problem to industrial hazards and conditions of employment or the inability of an individual to work (endeavoring to draw the fine line that distinguishes between

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eligibility for disability insurance and unemployment insurance, detecting malingering, dealing with the insurance neuroses, etc.). Nearly all of this type of work falls upon the assistant and seriously interferes with his research, teaching and self-development and threatens seriously to damage or break down the strongest part of the clinical organization and teaching.

HOSPITAL RELATIONSHIPS: The relationship of the teaching hospitals to the universities varies widely in the different centers. In states like Prussia, some of the hospitals are the property of the state and are university hospitals, built for the purposes of medical research and teaching. Others are municipal institutions. In a few places, university and non-university services exist in the same hospital and, on the whole, considerable differences in the arrangements exist. But regardless of the plan of organization, the teaching facilities are always in control of the professor, who is a university appointee and hence an employee of the state. Even in most of the municipal hospitals and clinics, whether in or distant from teaching centers, the attitude toward research and teaching is emphatic. These hospitals follow the same plan of clinical organization as the university clinics and have chiefs of the various services who devote themselves largely to the work in the hospitals. They are on salary but practically always have the privilege of private practice. The heads of the services are usually secured from the assistants in a university clinic and not infrequently these men are later called back to a professorship in a university. The quality of clinical work in most of the municipal hospitals is in the nature of the situation quite as high as that in the university clinics. Students and interns go to these hospitals for their training as freely as to the university clinics. They are likely to have better opportunities there than in the congested, hurried clinics of the teaching hospitals largely preempted by the assistants.

The complete separation of the teaching hospital staff and university faculty from the practitioners and the organized medical profession is a significant situation in Germany. The faculty seldom are members of the local medical societies and

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there is very little interchange between the hospital staff and physicians in the community. This lack of contact and co-operation has led to misunderstandings and an unfortunate schism in the medical profession which tended to accentuate some of the problems with which the profession in Germany is confronted.

CURRICULUM OF A GERMAN MEDICAL SCHOOL

A. First Part, Medical Sciences

		Hours per Week
I.	Semester (Summer)	
	Botany Lecture	3
	Zoology Lecture	3
	Physics Lecture	5
	Chemistry Lecture	6
	Laboratory	5
	Anatomy Lecture	5
II.	Semester (Winter)	
	Anatomy Lecture	5
	Physics Lecture	5
	Chemistry Lecture	5
	Anatomy Lecture	5
	Laboratory	10
III.	Semester (Summer)	
	Anatomy Lecture	5
	Physiology Lecture	5
	Physics Laboratory	4
	Chemistry Laboratory	4
	Histology Laboratory	4
IV.	Semester (Winter)	
	Physiology Lecture	5
	Laboratory	4
	Anatomy Lecture	5
	Laboratory	10
V.	Semester (Summer)	
	Embryology	
	Review	

Electives, particularly in IV and V Semesters:—

- Organic Chemistry
- Physiological Chemistry
- Neuro-Anatomy
- Anatomy of the Sense Organs
- Physiology of Internal Secretions
- Non-medical subjects.

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B. Second Part, Clinical Subjects

VI. Semester
- Lecture in Pathological Anatomy (General)
- Lecture in Special Pathology
- Propaedeutic Clinics in Medicine and Surgery
- Introduction Lectures in Medicine and Surgery
- Bacteriology Laboratory
- Introduction to Physical Diagnosis (Lecture)
- Pharmacology

VII. Semester
- Similar to VI Semester
- Microscopic Pathology, Laboratory
- Lecture in Pathological Anatomy (Special)

VIII. Semester
- No Required Lectures
- Numerous Demonstration Clinics in Medicine, Surgery and Specialties
- Section Work in Operative Surgery, Physical Diagnosis, Autopsies

IX. Semester
- Lecture in Hygiene
- Obstetrics Manikin
- Numerous Clinics

X. & XI. Semesters
- Lecture in Legal Medicine
- Clinics, including Psychiatry and Obstetrics

Electives
- Micro-chemical Diagnosis
- Massage
- Roentgenology of Normal Anatomy
- Electro-diagnosis
- Physical Therapy
- Ophthalmoscopic Examination
- Prognosis of Internal Diseases
- Diseases of Nutrition
- Diseases of the Spinal Cord
- Diseases of Urinary Tract
- Orthopedics
- Military Surgery
- History of Medicine
- Legal Psychiatry
- Toxicology
- Dietetic Cures
- Therapy of Neuroses
- Metabolic Diseases
- Lectures and Clinics in other special fields

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MEDICAL REVIEW OF REVIEWS
A MONTHLY JOURNAL OF THE MEDICAL SCIENCES
NEW YORK

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"Through the medical journals have been given to the world nearly all the discoveries which the science and art of medicine owe to American physicians. They furnish the original data which are the foundations of monographs and text books, and their files remain interesting and valuable when the latter have become obsolete and are forgotten."

—JOHN S. BILLINGS, M.D.

EDITORIALS

Functional Tests in Congenital Heart Displacements.

By MORRIS H. KAHN, M.A., M.D.

In a previous publication[1], the author has pointed out that the reaction of the circulation is more or less typcial in the various clinical conditions in which the responsiveness of the heart to effort is affected.

The normal variations of the pulse rate and blood pressure with change of posture and after exercise were presented in detail and have been used as standards for comparison.

In simple tachycardia, in compensation mitral regurgitation and in sinus bradycardia, there was no effect or only a very slight increase of the pulse rate after exercise. In thyrotoxic heart, the characteristic effects were marked instability of the pulse rate with great increase after exercise associated with an instability of the diastolic blood pressure.

A similar effect, but less marked, was found in neurocirculatory asthenia.

I have since had the opportunity to examine a number of cases with various congenital conditions and displacements of

[1] Kahn, Morris H.: Tests of the Functional Capacity of the Circulation. American Jour. Med. Sci., 1919, clvii, 634.

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the heart of which the results are embodied in this report. In these cases, the blood pressure was measured by the auscultatory method using a mercury manometer and a wide cuff. Hopping one hundred times on one foot was the exercise used. A series of observations was made and repeated and the average figures calculated.

The diagnoses of the cases examined were:

1. Heart drawn to the left by pleural adhesions.
2. Congenital dextrocardia.
3. Heart drawn to the right by pleural adhesions.
4. Congenital patent ductus arteriosis.
5. Auricular flutter during an interval.

Functional tests in the case of heart drawn to the left by pleural adhesions: It is interesting that the heart drawn to the left by pleural adhesions reacts to postural change and to exercise practically as the normal heart. There does not seem to be any disturbance in its reaction in the systolic or diastolic blood pressure or in the pulse pressure or pulse rate variations.

Functional tests in congenital dextrocardia, with complete transposition of the viscera: Here again the variations from the normal are comparatively slight and may be accounted for by the individual reaction of the patient rather than attributed to the congenital abnormality.

Functional tests in heard drawn to right by pleural adhesions: In this condition the heart was drawn far over to the right by pleural adhesions and the heart apex was located in the fifth right interspace. The most striking abnormality in the functional reaction consisted of an increase in pulse rate of about 56 beats per minute, soon after exercise. The systolic blood pressure, diastolic blood pressure and pulse pressure variations were not abnormally affected.

Functional tests in congenital patent ductus arteriosis: In congenital patent ductus arteriosus the striking feature was the sudden drop in diastolic blood pressure immediately after exercise, remaining low for several minutes after. Whether this may be attributed to the congenital defect is a question to be decided by further observations.

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Functional tests in auricular flutter during an interval: In auricular flutter, the observations were carried out and carefully repeated. They show a picture almost exactly like that obtained in the five cases of paroxysmal tachycardia recorded in the previously published report.

I believe that the functional reaction of the heart as estimated by the systolic blood pressure variations, diastolic blood pressure variations, pulse pressure variations, and pulse rate variations is characteristic for the normal heart and distinct for hyperthyroid conditions, essential hypertension, neurocirculatory asthenia, cases of paroxysmal tachycardia, and structural congenital heart defects.

If I Were a Doctor

Credo Medici

By SAMUEL H. MOORE

[Laymen are constantly setting impossible standards for the medical profession. Here is the latest flight, contributed to the Medical Review of Reviews by an official of the Peoples Gas Light and Coke Company of Chicago.—ED.]

I'd have a diploma from a class A medical school, even though I was obliged to take a post graduate course at one of them, to get it.

I'd be very discriminating in my selection of professional confreres—doctors and hospitals—keeping in mind always, that I will be judged largely by the profession "Company I keep."

I'd establish a fixed line of demarkation between what was right to do, or wrong to do, and then unreservedly follow the right course, as a standard for my professional career, knowing that the right way is always the ethical way.

I'd be mindful, never to imperil my dignity or status as a professional man, to win the approbation of anybody.

I'd be watchful, however, whilst always commanding that degree of respect becoming my professional rank, never to assume an attitude which might in the least suggest or register as a superiority complex, in the minds of the public.

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I'd aim high professionally, with the idea of establishing myself as one of the outstanding men, in my particular division of the work.

I'd acquire the habit of being ready always to administer to the suffering, giving generously of my time and talents, to the deserving in need.

I'd establish the practice of charging for my services on the basis of what the patient can reasonably afford to pay and be sure to have a mutual understanding about it, when I assumed the management of the case.

I'd expect a patient of wealth to pay me proportionately more than one of moderate or meager means, and I'd be careful not to be taken advantage of by the class who can afford to pay but who do not, if they can avoid it.

I'd never forget the fact that the time taken, the efforts or sacrifices made, and the expense of my medical education, gave me the right to all of the money I could legitimately, and with a clear conscience, accumulate.

I'd be extremely cautious in doing this, however, not to earn the reputation of degrading my lofty vocation by "dollar chasing."

I'd realize that I couldn't take any of it with me when I died and that the thing of greatest value to leave behind me as a heritage, would be the reputation for always having been honest with everyone.

I'd study the idiosyncracies of people, to become better fortified to develop and maintain that intimate human relationship so necessary and effective in my professional contacts with them.

I'd use my best influence in whatever hospitals or institutions I collaborated with, to establish and maintain a fraternal position with reference to the patient and an institutional atmosphere comparable to that of any good home.

I'd be ultra modernistic, with reference to what a good hospital should be and then inject a lot of salesmanship behind the idea of, first—rendering a real unselfish service to the patients, and, second—sending them home, knowing that they would like to come back if exigency demanded it, because the

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place had not left on their minds, the impression of some mystic maze, or of a frigid, inharmonious and unfriendly place to be when sick.

I'd resolve to propagate these ideals in all of my professional affiliations and more specifically with the unpracticed young men and women entering the field.

I'd cultivate a wholesome and gracious personality, as an invaluable agent, by which to be able always to meet my patient on common ground, but not necessarily at a common level.

I'd get it fixed definitely in my mind that I must learn the right method of approach to my job because fundamentally, all human beings are similar and, with few exceptions, they are amicable and almost automatically responsive to kindly or sympathetic service, and the smile on the face or in the voice.

I'd master the method of approach by first learning how to make a pleasing Contact with people, which encourages Conference, which begets Co-operation, which finally guarantees unreserved Confidence.

I'd remember, that to have the unconditional confidence of my patient, gave me a distinct advantage over the doctor, who by his uncordial or alienated attitude, invariably leaves in the mind of his patient, uncertainty as to his ability, sincerity, or integrity.

I'd never leave a situation unexplained, nor would I ever dodge an issue, where the well being of a patient was concerned.

I'd rid myself entirely of the old notion, that to practise medicine effectively, one must assume an air of mystery and evasion with his patient, or tiptoe and whisper in his presence.

I'd never forget that Confidence means trust, and if I never did anything to betray a trust, I'd disabuse my mind forever about how much money I might have finally, to carry me through the twilight period of my life, anticipating that a host of volunteer patients would be my assurance of a healthy reserve.

I'd begin early in my professional career to train a man my way, to "carry on"—forecasting the time when I would abandon active work—just as one of the most widely known

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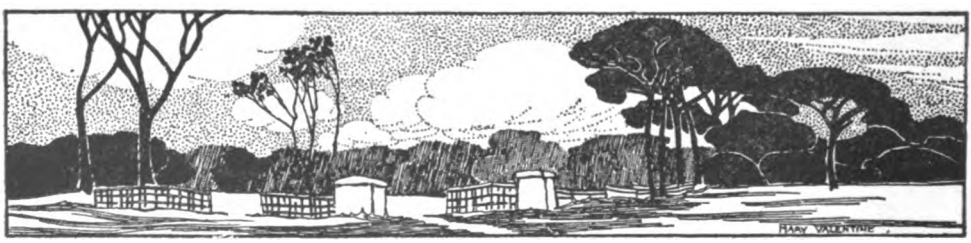
and highly respected men of the medical profession did, of my personal knowledge, and then I would want always, to be as proud of him, as I know this eminent doctor to be, of his chosen successor.

I'd endeavor to earn a reputation for being a well balanced citizen, an estimable example for other men to follow, a trustworthy doctor, and a genial and dependable friend and adviser, to any one less favored.

I'm not a doctor but from my position of vantage on the outside looking in, I can survey the fruitful fields where doctors toil and I see great opportunity for a much richer harvest, if they will only dig deeper under the surface, for the heart and soul of their task.

I'll never cease wondering, why more of them don't see what I see, and what I am sure I would always see, standing out as a beacon light to guide me to greater achievement.

If I were a doctor.



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BOOKS

The Integration of Personality. A Social Interpretation of Education, by Joseph K. Hart. Henry Holt & Co., 467 pages. Price $4.50.

One has the feeling of having traveled with an understanding guide along the educational march through the ages. He shows us the primitive groups, dominated by the emotion of fear, who taught their youth their folkways and after the initiation accepted them into adult life to help defend the group. Later, we see the period of the Sophists and of Socrates: this terminated in the dominance of Plato's *Royal Lie*—ideas as the only reality. Ideas were substituted for experience. "The true academic ideal," Prof. Hart observes, "proposes to 'form' the 'mind' of the 'pupil.'" This ideal still persists in the "old school."

Proceeding from the Gestalt principle that the whole is *more* than the sum of the parts, Prof. Hart maintains that the group antedates the individual, that education must embrace the whole of life, and that we must change the whole—i.e., the community. The integrated community could then educate and produce integrated personality. The book contains an implication that psychiatrists and Freudian analytic psychologists have partially indicated the way toward integration by studying results of the "molding" repressive education. Teachers, however, according to the author, have not yet found the way. But he hopes that a modern Socrates will emerge.

The implied undercurrent of agreement with the Freudian psychology makes one wish that the term, unconscious, had been used to clarify the ideas of the "general mind" and the "individual mind" in their relation to the conflict with the institutionalized community. The chapters on the contributions and limitations of the "new" and "old schools," their educational aims, their achievements and the chapter on the school of the future and its curriculum should stimulate educators to thought and action.

ROSETTA HURWITZ

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174. *Louis Berman: The Glands Regulating Personality. Macmillan Company, New York.*

Dr. Berman has written entertainingly of those mysterious entities that are occupying the center of the stage today, the internal secretions. Beginning with a description of the various endocrine glands, their functions when normal, and how they influence the individual in whom they are either overactive or underactive, he goes on to discuss some of the very intriguing subjects to which all of this new knowledge beckons us. The Glands as an Interlocking Directorate, The Basis of the Masculine and the Feminine, The Backgrounds and the Types of Personality, Some Historic Personages, Applications and Possibilities—these chapter titles give an idea of the way in which an interesting writer has handled a very stimulating subject. Dr. Berman's wide reading makes his writing rich in its suggestiveness; and gives rise to a style that is entertaining to a degree not too common among medical authors.

175. *Louis Heitzmann: Urinary Analysis and Diagnosis. William Wood & Co., New York.*

The first impression gained by a doctor who is at all on speaking terms with his microscope, on looking over this new book on urinary diagnosis, is that here at last are lots of pictures to help him with the fascinating job of studying the most important of all the excretions. A more careful study of Dr. Heitzmann's book confirms this impression, together with the conviction that someone to whom a pencil is a familiar tool has tried to make things easier for the busy doctor. Not there is a wealth of expensive plates —to make the book more expensive, whether or not it is more practical. No, just picture after picture of microscopic field after field, each one making some diagnosis easier and more certain for the doctor who does his own laboratory work. In his preface, Dr. Heitzmann makes large claims for the efficacy of the microscope as a diagnostic interpreter of pathological conditions—and then in the text goes far toward making these claims good. The way in which he makes epithelial cells stand and deliver their names, addresses and previous condition of helpfulness or the revers, is in itself a justification of the price of the book. Every once in a while, some one treats an old medical subject in a delightfully new way. The author of this book has done just this thing; and a harried reviewer thanks him for it.

176. *Francis Marion Pottenger: Symptoms of Visceral Disease. C. V. Mosby Co., St. Louis.* 1930.

In this fourth edition of his well-known work, Dr. Pottenger has opened up the fascinating subject of the effect of psychical stimuli in bringing about abnormal hysiological response on the part of the patient. This, while it is well-known to the physician, is not something that has been written about in any extensive way—certainly not in anything but a very general and indefinite manner.

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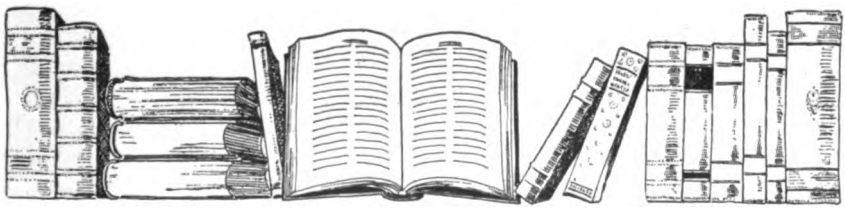
Dr. Pottenger, although widely known as a specialist in tuberculosis, especially of the chest, refuses to confine himself to any narrow specialty. He insists upon seeing the patient, not as a collection of interesting signs and symptoms, but as an individual with a heredity and a constitutional set-up that distinctly differs from that of every other individual. Not content with asserting this, as has been so frequently done, Dr. Pottenger delves into the immense field of the vegetative nervous system, and with the assistance of profuse illustration, well chosen bibliography, and clear cogent English brings this little-understood field into the ken of anyone who cares to familiarize himself with it. His careful study of the innervation of the various viscera is a classic. The book is to be commended to the thoughtful physician who is interested in knowing something about the less apparent causes of disease in his patients.

FRANK HOWARD RICHARDSON, M.D.



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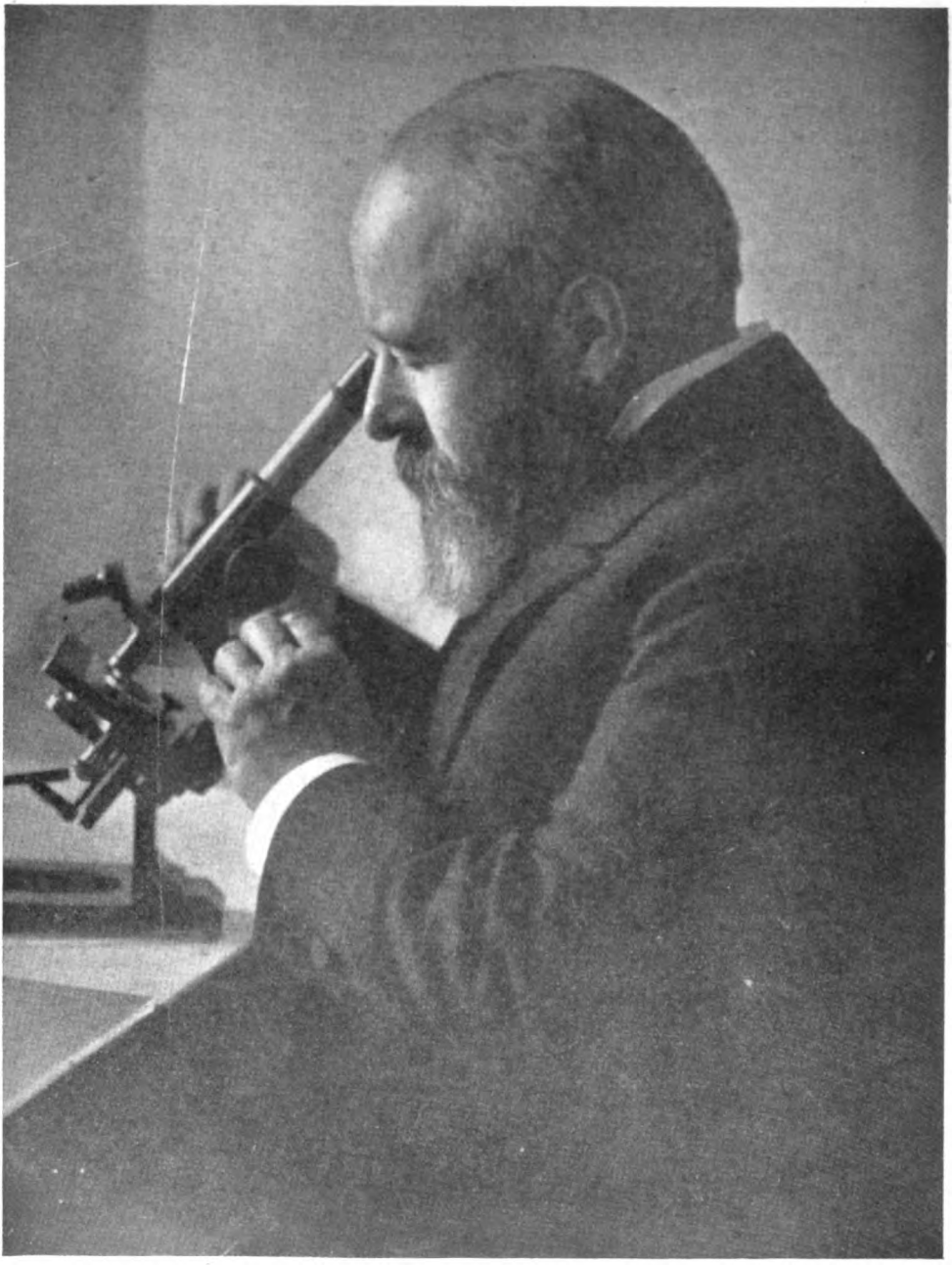

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Jacob Henle

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Announcing for Publication

A New Superficial Dorsal Reflex

BY

G. ARBOUR STEPHENS, M.D., B.S., B.Sc. (Lond.)

Consulting Cardiologist King Edward VII Welsh National Memorial Association; Cong. Physician to the District Hospitals of Cardigan, Clydach and Llandovery; Fellow of the Medical Society of London; Member of the Board of the Welsh School of Medicine.

This is the first time that this reflex—**the Arbour Stephens Reflex**—has been brought to the notice of the American medical profession, and as it occurs as one of the first signs of chorea it is worthy of being put to the test by American practitioners.

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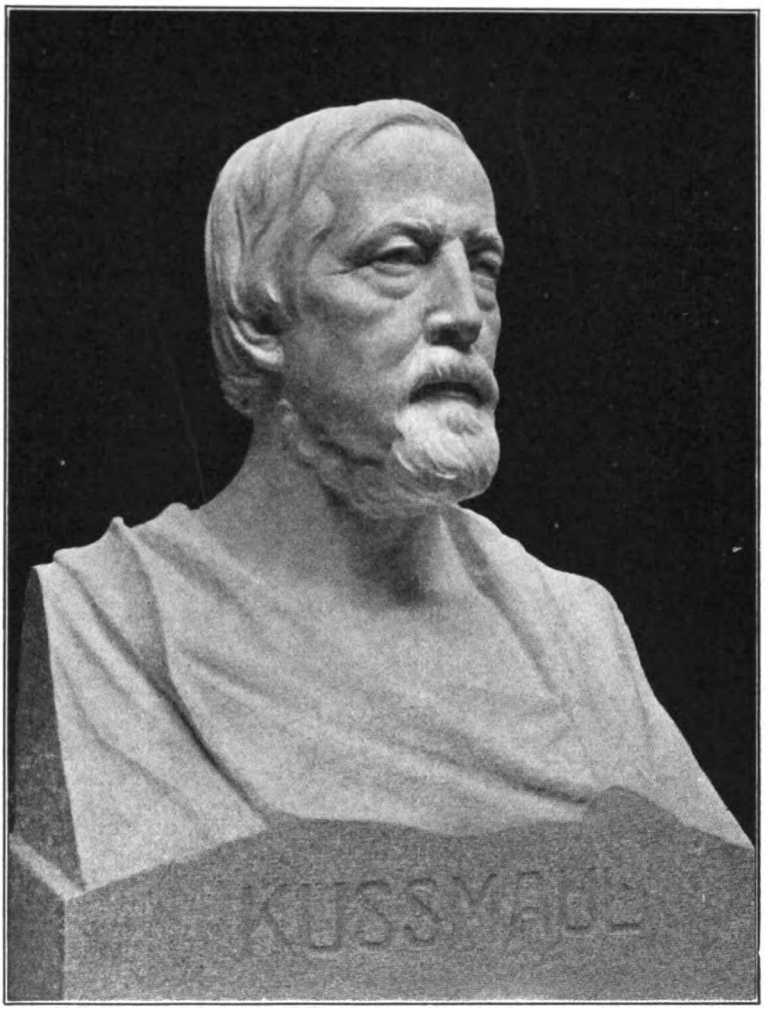

ADOLF KUSSMAUL

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Cancer

By IRA I. KAPLAN, B.S., M.D.

Of late there have appeared in both the lay and the medical press so many conflicting statements regarding cancer, its diagnosis and cure, that to determine upon a course to follow in the treatment of such conditions from reading these statements is as difficult almost as to understand the Einstein theory of relativity. Nevertheless it is highly essential that the medical man possess a clear fundamental conception of cancer based on scientific factors before he attempts to decide on the case presented to him for diagnosis, treatment or continued care.

Though carcinoma was known to the ancients, having already been described by Hippocrates, not very much has been learned as to its origin or cause. At a time when all diseases were catalogued as humors, and each had its specific blood humor, something approximating the truth was reached in explaining cancer. For today as in ancient times, we have come to realize that cancer is not a disease that is limited merely to some local manifestation in the form of an ulcer or tumor but is really a generalized condition throughout the body.

As to the cause of cancer, that is still in the realm of the unknown. Theories of every sort have been advanced but without any real development that has stood the test of actual

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demonstration. While nothing thus far suggested has been proven to be the cause of cancer, there are, however, some causative agencies which, we believe today lead up to the development of cancer in the human body and these conditions are readily susceptible of experimental proof.

It is this regrettable lack of knowledge as to the cause of cancer that has made treatment of the disease so difficult and its cure, except in certain instances quite impossible. At the same time, the frank acknowledgment of this situation by sincere workers in the subject has unfortunately furnished so fertile a field for the quack to practice his nefarious evils on a gullible public.

Despite all our more or less scientific efforts to find a cure for cancer, nothing definite has been accomplished. Too often have our expectations been raised by the sudden, spectacular announcement emanating from a seemingly scientific body of a cure for cancer only to have our hopes shattered when under scientific investigation it is disclosed that the whole idea on which the claim was based is unsound or false. Such, for example, were the announced cures by colloidal, glandular and medical substances.

It was thus that the early enthusiasm of physical therapy was seized upon as a panacea for cancer, but only too quickly were the hopes of both laity and profession dashed by the failure to cure by such physical methods as X-rays, radium or the high frequency currents.

With the advent, however, o f a better understanding of the biological and physical properties of these agencies, a more rational method of using them was evolved which, in certain cancer conditions, offers at least a partial, if not permanent cure.

Together with the early recognition of cancer, surgery was given first place in the treatment of this disease, and in the second century B.C. we find Leonidis practicing surgery of the breast for cancer. The numerous difficulties then being encountered by surgeons in their ordinary work, before the period of present, advanced, scientific methods, made the surgical treatment of cancer something particularly to be dreaded. With the advent of a better understanding of the condition, its

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method of spread and especially the more recent knowledge of the importance of the lymphatic organs in the localization or dissemination of cancer, came a correspondingly better surgical handling of cases so afflicted. The remarkable surgical treatment by such men as Halstead, Wertheim, Bloodgood and the Mayos, diminished considerably our hopelessness regarding cancer, but in the final analysis, all that these men brought us was that surgery of cancer to be of value must be done early, radically and by one well trained in the subject.

However, cancer operations besides requiring the skill of an especially and expertly trained surgeon are, even when properly carried out, unfortunately rather mutilating. So that it was with the idea of destroying without mutilating that the method of irradiation with X-rays and radium was considered, but only after a great many untoward experiences have the proper methods of irradiation been evolved today. These are the methods which for certain conditions are those we choose above all others. Like the surgery of cancer, however, the treatment by irradiation must be carried out only by one thoroughly trained in this work.

An important factor often overlooked in the consideration of the care of cancerous conditions is the patient himself. Treatment of cancer to be most effective and offer at all a chance for successful cure must be carried out while yet the disease is manifested by an easily recognizable local condition. In its early stages cancer is curable by proper treatment; when generalized, no form of treatment can be more than palliative.

The care of pre-cancerous lesions, those which through our present knowledge and experience we have learned to look upon as the forerunners of cancer is of extreme importance, for the persistent irritation produced by such lesions unquestionably brings about a cancerous condition.

In conclusion, as far as we know today, no definite cause of cancer is known nor is a sure cure possible for this disease in all its stages. The care of pre-cancerous conditions and the elimination of constant irritation of such lesions will prevent cancer, but the only possible cure of cancer already established is the proper treatment by surgery or radiation, alone or in combination. Such treatment, however, to be effective as a cure

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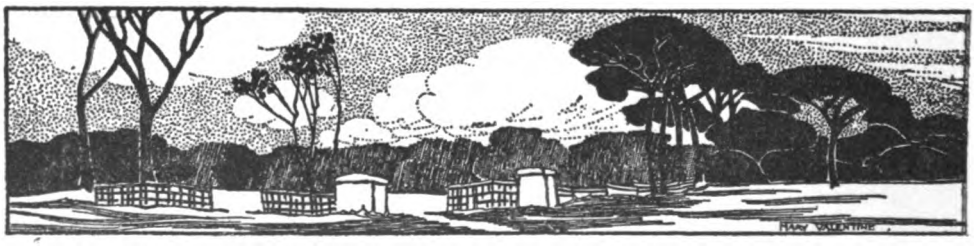
must be applied in the early stages of the disease, at any other time it only offers palliation.

In order to enhance the value of cancer treatment and enable those properly trained to care for such conditions in time, it is essential that both laity and profession be suitably instructed in the essentials of cancer recognition. This is especially important for the family doctor and general medical man just as for the specialist. For only too often the patient reports early enough to the physician who, unfortunately either knows nothing of the disease or recognizes it too late as cancer while an earlier knowledge would have made for a proper curative treatment.

It is essential, therefore, that a better understanding of the subject of cancer be sought for by physicians who have their patient's welfare at heart, and ample opportunities for the study of this subject are offered both by private and municipal hospitals which specialize in the care of cancer patients.



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Cancer

By B. S. Levine, Ph.D.

The incidence of cancer among civilized people is constantly increasing. There is hardly a person among the civilized nations anywhere on this globe who has not heard of this affliction and who does not realize what this affliction means in the ultimate if the proper treatment is not administered at the proper time. Statistical information gathered by the American Society for the Control of Cancer indicates that the increase in the cancer frequency is not a mere alarmist cry, nor is it attributable to improved methods of diagnosis, classification and certification. The increase is real, in spite of the improved methods of operation and of other modes of treatment of this malady. Statistical information indicates that in 1921 mortality due to cancer was sixth, in 1924 fourth, and in 1928 has become second on the list of mortalities due to various diseases. It is now preceded by only one group of diseases, that of the heart, which according to some statistics is itself on the increase.

Since the general conclusion is accepted by practically all the foremost authorities on the subject that cancer cannot be prevented with our present knowledge, the only hope for reducing the mortality rests in the early diagnosis, followed by such treatment which would interfere with or completely arrest the progress of the disease, thus prolonging or saving the life of the subject. This can be done, if the growth is tackled before it has gotten out of all possible control. It is, however, evident that unless the proper knowledge concerning cancer is intelligently disseminated among the laity, only those cases which have passed the threshold that lies between possible control or cure and hopelessness will come to the attention of the specialists.

Cancer, it is generally conceded, is more frequent in cities that in the rural districts. It is more common among the well to do than among the poor, and seems to afflict the "well nourished" and those "in good health" more frequently than the indigent. This need not be interpreted to mean that the undernourished and the poor are immune from cancer affliction.

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It merely means that statistically there is a difference. It appears to be a disease primarily of civilized people. It is well known, for instance, that our native Indians, as well as the Indians of South America are practically free from cancer. The disease is unknown among the aboriginal black races in Africa, but is rapidly increasing among the mixed Negro population of this country.

It must not be inferred from the above statements that cancer is a disease of recent origin. On the contrary, the ancients knew this disease well and treated it by excision and by escharotics, such as the Egyptian arsenical ointments. James Ewing in his book on Neoplasms states: "Cancer is mentioned in the Papyrus Ebers (B.C. 1500) and in the oldest remnants of the literature of India and Persia. Hippocrates (B.C. 460-375) received from earlier days a considerable body of descriptive facts regarding cancer of the skin, of the breast, of the uterus, and of the internal organs. . . . Herodotus mentions that Democedes (B.C. 520) cured Atossa, the daughter of Darius Hystaspis, of breast cancer, and Hippocrates burnt out a carcinoma of the neck. . . ."

Speculation as to the cause and origin of cancer started equally early. Thus, in the time of Hippocrates, when the humoral conception prevailed, deficiency or excess of blood, mucus, or bile were considered as the basis of this, as well as of all other diseases. Galen (A.D. 131-203), who is considered the founder of experimental physiology and pathology, accepted the humoral theory and has presented his "humoral doctrine" of *atra bilis*, or black bile, which dominated the medical thought for more than a thousand years. Cancer, according to that doctrine, developed from a concentration of black bile. Paracelsus (1413-1541) was the first to successfully oppose Galen's theory of *atra bilis* as the cause of cancer. Yet, in the place of it he accepted another theory, equally fanciful and unscientific from our present point of view. He assumed that cancer developed in spots where various animal salts became concentrated and sought outlet. Sennert (1572-1637) in Prague and Lusitanus (1642) in Lisbon claimed that cancer was a contagious disease.

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In 1628 Harvey discovered the circulatory system, in 1622 Aselli had discovered the lymph vessels, and in 1661 Malpighi made a study of the red blood cells. The microscope, which was introduced in 1592, was now being used extensively. Throughout the living organism blood and lymph were observed, but the black bile was absent, and thus the *atra bilis* theory of Galen was irrevocably discredited. The lymph theory of the origin of cancer now took its place. The lymph, it was observed, had the property of coagulating and of foaming on boiling, simulating thereby certain physical states of some of the cancers. It is only natural that these properties of the lymph should, therefore, be associated by the observers of that time with cancer formation. Thus, it was thought that cancer was composed of lymph varying in density and in reaction, and that malignant tumors were in the fermenting and degenerating stages.

However, as time went on and new observations were being made, new ideas concerning the etiology of cancer began to gain a foothold. The chemical conception of the origin of cancer, such, for instance, as excess of acid, was supported by some, while others believed that stasis and thickening of the blood were the responsible factors. John Hunter (1728-1793) forwarded a theory which represented a marked advance in the understanding of the etiology of cancer. Like most men of his time, he believed that tumors grew from the coagulable lymph constantly thrown out of the blood. He was of the opinion, however, that, like normal tissue, tumor tissue was nourished by the organism, and that it developed according to the same biological laws. Such a view, though true only in a qualified sense, represented a decided approach toward the modern conception of cancer etiology. It paved the way for the, so called, "Histologic Period."

With the construction of the achromatic microscope in Paris in 1824, cancer research began to develop more rapidly. Minute structural studies of mysterious growths were made by many investigators. Raspail in 1826 was able to demonstrate that the growth of tissue, tumors included, resulted in multiplication of cells, and Collard in 1828 observed and described

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clearly the stages in the embryonic development of tissue, while Schwann in 1838 established the doctrine of cellular structure as a universal principle. The nucleus and nucleolus of the cell were discovered, but the real origin of cells was still a mystery. It was held that most of them developed from plastic lymph by a process of budding. The originating tumor cells, it was believed, were derived from the *seminum morbi* or fluid blastema. This theory of cancer origin was supported even by such great thinkers in the biological circles as Virchow and his associates. It was not very long, however, before Virchow perceived the error of such a conception, and when he announced his doctrine of *Omnis Cellula e Cellula;* he thus abandoned his belief in the blastema origin of tumor cells. He had given the lymph theory a death blow. From that time on, research in cancer went on in a more rational and scientific way and with a still greater tempo.

Opinion concerning the origin of cancer and its cause is still far from being unified among the foremost workers in this field of pathology. Still enough experimental evidence of a convincing character, in addition to careful observation, has been accumulated to bring some order into this important phase of human affliction. Of the most plausible theories of the cause and origin of neoplastic growths the following are worthy of mention: 1. The theory of displacement of embryonic rest cells, or Cohnheim's theory. 2. The theory based on the effect of injury or continuous irritation with inflammatory reaction.

According to Cohnheim's theory, it is assumed that at some stage of the embryonic life, cells become isolated while still possessed of tremendous potentialities of growth which would have carried them on to the development of some specific tissue of the body, if they remained in their normal relation to the rest of the embryonic cells. As it is, they remain dormant in their isolation until the other tissues have developed into the various organs of a normal man. Later on, some force, still unknown, sets these rest cells into motion with all their original power to development. It is supposed, according to the supporters of this theory, that the younger the embryonic cell that became isolated and thrown into a rest state, the more vicious will its growth be when it is set into motion again.

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Another phenomenon worthy of special attention is the following: If the early embryonic cells remain undisturbed in their relationship, they will not only develop into the corresponding organs of the adult body, but each organ will grow only a certain number of cells. This number is limited not because of lack of power on the part of the organ to grow more, but because of the fact that the normal interrelationship among the organs demands, for the general welfare of the final organism, that there be just so many cells and no more. Should some of the cells of an organ be destroyed, it will, if normal conditions prevail, restore the original balance or as near it as is possible. There appears to be, as it were, under normal conditions, a delicate, yet effective force controlling the relationship of the tissues to one another. Thereby tissue is, so to speak, disciplined and grows only when required, never on its own initiative. It is possible, though this is a mere conjecture, that such a control is exercised via the nervous system.

In the case of the dislodged embryonic rest cell, its relationship to the original plan has been distorted, and, hence, the disciplining power spoken of above has no control over it. Consequently, once started such a cell produces a tissue, which completely disregards the laws established for the welfare of the body, has no regular architectural structure, has no limit so far as ultimate purpose or numerical reproduction is concerned, nor pays any heed to boundries, and invades other tissue, destroying it in its ruthless and uncontrolled progress.

The second theory, based upon the effect of injury or continuous irritation with inflammatory reaction is the one that covers the majority of the neoplastic growths. The basic conception of this theory arises from the fact that all tissue is endowed with the properties of protection and of repair. Under the stress of circumstances, injured or irritated tissue begins to grow new cells which normally cease or even subside as soon as, or shortly after the provoking cause is removed. However, if the irritation is unduly prolonged, or if the controlling factors for some reason are upset, and lose their reacting power, the repair or protective processes *go wild* and the new tissue follows the same lawless progress described in the previous paragraph, forgetting, as it were, where and when to stop.

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Irritation may be due to a large number of causes, and so this theory explains tumors arising from parasitic, microbial, and other infestation; tumor growths resulting from the disturbance of equilibrium of tissue (since such disturbance presupposes a new interfering factor); tumor growths arising from unaccountable changes in the normal cells, the lip cancer of pipe smokers, cancers of the gall bladder, of the renal pelvis, and of the urinary bladder in connection with stone formation; the cancers of the bones, of the normally narrow passages of the digestive tract, the occupational cancers, the paraffin, the tar, and the chimney-sweeps cancer; cancer of the bladder and kidney in aniline workers, of workers in the spinning mills and in the cigar factories; the X-ray cancer, the neoplastic malignancies developing in chronic cystitis, in chronic syphilis, in tuberculosis, in cirrhosis of the liver, and in various skin conditions, etc. All such malignancies can be conveniently accounted for by this theory.

Not all specialists in neoplasm agree with the plausibility of the irritation and repair theory. In the first place, the objectors make a strong bid for placing the new growths arising in connection with chronic infection into an independent group. Secondly, they contend that since *thousands upon thousands* of injuries and chronic irritations *do not* result in abnormal growth of the repair tissue, the conclusions that may be drawn on the basis of the above theory are invalid or grossly exaggerated to say the least. In reply to such objection it may be stated that infection is a foreign factor, and as such calls for protection, or protection failing, for repair. Hence, to the layman at least, it would seem more logical to place neoplasms associated with parasitic and microbial infection under the wing of the injury and irritation theory.

The objection to the repair and irritation theory on the ground that the *infrequency of neoplastic occurence* as compared with the *quite frequent occurrence of injuries and of prolonged irritation* are incompatible, is rather a surprising one, coming as it does from persons supposed to be well acquainted with biological processes. As previously stated, nature has endowed normal tissue with the power to repair and pro-

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tect itself against attack of all kinds. These repair and protective processes, again normally, are controlled with regard to *direction, volume, and duration* by the general scheme of organic planfulness. This applies to experimental as well as to accidentally occurring injury and irritation. Only when the general scheme for some unknown reason gets into "some sort of a mix" and one or more of the controlling factors, undemonstrable though they still remain, are overruled, the growth of tissue *gets off the proper path* and forgets, so to speak, when and where to stop. Predisposition to neoplasms, if such can be demonstrated, does not speak against the theory, but supports it, if we assume that predisposition means greater ease for overruling one or more of the normally controlling factors of the growth of repair and of protective tissue. We are, therefore, not to wonder why *all injuries and chronic irritations do not* turn into malignant growths, but rather we are to be gratified by the fact that comparatively few of them *are associated* with such a loss of growth-control as has been described above.

The acceptance or rejection of the above discussed theory is not merely of interest to the squabbling and hair-splitting specialists and theorists. It is of utmost practical importance to the layman, and for this reason has been dwelt upon at some length in this article. Certain practical suggestions follow from this theory, such as: Do not pick your nose frequently and violently; do not continuously pinch the skin of your face by attempting to squeeze out blackheads or pimples; do not habitually scratch your toes; do not allow an infection to become chronic; do not ingest food (roughage) which injures or continuously irritates the delicate mucosa of the digestive tract, especially if there is "something wrong" with your gastro-intestinal tract; do not continuously irritate yourself or attempt to remove from your skin moles of any kind, as they tend to develop into especially vicious cancers; avoid the continuous inhalation of foreign injurious gasses or solid particles; avoid subjecting any part of your body to any unnecessary continuous irritation or pressure; etc. It is not because of fear and suspicion that *in every case* where the above

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mentioned interfering factors might be present will there develop a malignant growth, but rather to eliminate, if possible, the stimulating causes in the cases where such growth *might perchance develop.*

Although the article is captioned under the title "Cancer" it will have been noticed that the term tumor has been occasionally resorted to. The majority of the laity probably do not know the relationship in which these two terms stand to one another. A *tumor* generally and properly defined is an autonomous neoplasm or new growth of tissue. As such, the term stands as a generic name and includes all new growth, whether of normal or of pathological origin. Of the normal tumors, the fœtus or the embryo may be mentioned. We are not, however, here concerned with the normal tumors but with the abnormal or pathological tumors. Such tumors are new to the organism, are usually *progressive and expansive,* originating, as stated above, from an isolated or stray-going group or groups of cells, and pressing upon or invading into contiguous tissue. Some tumors are encapsulated or otherwise ramified and isolated and do not tend to invade the surrounding tissue. Such tumors are designated as *benign,* and usually are not fatal, as long as they remain subject to the original ramifications. Other tumors are *extensive and infiltrative,* starting with a single cell or with a group of cells, pushing their way *through* the adjacent tissue, thus destroying it and in some instances precipitating the contiguous normal cells into the tumor forming riot. Such tumors are spoken of as *malignant,* and invariably cause the death of the organism.

Benign tumors do not always remain harmless. Under certain circumstances the growth breaks through the capsule or otherwise gets out of the boundaries of its isolation, when it, too, becomes malignant. Such breaking through of the new growing tissue of benign tumors may take place of its own accord, or it may be caused by external factors, such as cutting, pressure, or any other unwarranted trauma. It follows, that persons suspected of a beginning tumor should not allow any medical quacks to treat them by any mechano-therapeutic means, as this may deprive them of any chance of survival. Nor

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should physicians unfamiliar with the principles of cancer growth be allowed to operate or even palpate the tumor. Recourse should be had only to the best specialist available, one who has had experience in this line of pathology, and especially one who follows the literature carefully.

A cancer is a malignant tumor. The group of malignant tumors or of cancer is further subdivided into two subgroups: *Sarcomata,* vascular cancers arising from the *connective tissue,* and typically consisting of a mass of cells bound together by connective tissue, and *Carcinomata,* cancers arising from epiblastic or hypoblastic *epithelia.* It is typically painful and tender. Carcinomata include the majority of malignant tumors. Cancers are characterized by the property of giving rise to *metastases.* By metastases is meant the transfer of the disease from one organ or part of the body to another not directly connected with it. Metastases are usually accomplished by the separation of individual cells from the *primary* malignancy and by their being transported through the lymphatic channel or through blood vessels, or through muscular movement into another part of the body, where, as soon as they become anchored, such cells develop into *secondary* malignancies equalling or exceeding the primary in severity. Metastases may follow operation and even palpation, hence, here again the same precautionary measures should be observed, keeping in mind that only specialists with considerable experience should be consulted.

A great deal of mystery has been hanging over the entire subject of neoplasm, and because of its ruthlessness in destruction, considerable fear is aroused every time a term connected with the subject is uttered. This is especially true of the nomenclature used in connection with tumors, since it is mostly of Latin origin and can not be properly interpreted by all laymen. The truth is that there is nothing more mysterious about the growth of a tumor than about the growth of any tissue. To remove this unknown factor from the mind of the reader, the following simple classification is offered with explanations:

1. Benign tumors composed of tissue of connective character.
2. Tumors composed of tissue of muscular character.

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3. Tumors composed of tissue of nervous character.
4. Tumors composed of blood and lymph channels.
5. Malignant tumors composed of tissue of connective character (sarcomata).
6. Pigmented tumors.
7. Tumors composed of tissue resembling adrenal cortex.
8. Tumors thought to originate from endothelium (endotheliomata).
9. Benign epithelial tumors.
10. Malignant epithelial tumors (carcinomata).
11. Chorionic epithelioma, an epithelial tumor arising at the placental site during pregnancy.
12. Mixed tumors and teratomata; tumors showing two or more definite characteristics, and tumors containing fœtal remains congenitally derived, such as teeth, hair, etc.

Under each of the above main heads are grouped a variety of tumors, such as: *Fibroma,* composed mainly of fully developed connective tissue; *Rhabdomyoma,* composed of striated muscular fibres; *Neurocytoma,* composed of cells which tend to differentiate into nerve cells; *Hemangioma,* composed of new-formed blood vessels; *Mixed cell Sarcoma,* the name of which is self-explanatory; *Melanoma,* a pigmented tumor; *Hypernephroma,* composed of suprarenal tissue; *Cystadenoma,* a tumor glandular in character and which has undergone cystic degeneration; *Adamantinoma,* formed from the remains of the enamel organ; etc.

This classification may appear too technical and, therefore, too tiresome to the average reader. Yet, it is believed that even the smattering generalities obtained from glancing over this classification will be of benefit. A knowledge of the terminology and of the connotations implied tends to deprive these medical terms of their mysteriousness and to dispel considerable of the fear usually evoked by them. It is well to bear in mind that no matter how long the term may be, how horribly hard it may prove for some to pronounce, it stands for only one thing—*there is a tumor* which may be benign or malignant, and that something should be done about it, and usually the sooner the better.

The therapeutic treatment in tumor affliction is in itself a subject of no particular interest to the layman, since such treatment is not of the nature of home remedies. It is best sug-

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gested and applied only by medical persons *specializing in this field of pathology* in accordance with the particular diagnosis and probable prognosis arrived at. Certain things, however, are at present accepted as established and reliable information, a knowledge of which should prove of benefit to the average reader. It is known, for instance, that tumors are not in themselves germ diseases, and, therefore, are not infectious, as is the case with tuberculosis or other purely bacterial diseases. Hence, persons afflicted with tumors should not be treated as had been the lepers in olden times. Nor are the tumors in any sense "social diseases," and should not, therefore, carry with them any shame or stigma. (Nor should "social diseases," for that matter). There should be no tendency to conceal or minimize the affliction, as has been done by many apparently intelligent people, for such an attitude leads to a delay in diagnosis and treatment, and thereby to a loss of the only chance of possible cure.

In the light of the present knowledge of tumors, benign as well as malignant, it appears certain that mechano-therapy is dangerous; that serum and vaccine treatment are impotent; that internal administration of drugs is as devoid of any therapeutic benefit as the drinking of pure water; and that concentrating on the wish for or praying for the disappearance or arrest of the tumor is as effective as praying for the sake of stopping the oncoming old age. To pay heed to quack advertisements to resort to ministrations of chiropractors, osteopaths, and faith healers or to accept institutional treatment of registered charlatan physicians, not only results in an unwarranted waste of hard-earned money, but, as in the case of the concealment of the disease, leads to delay in the timely and proper diagnosis and possible proper treatment. Finally, it must be stated that the present information indicates that tumor is not an hereditary biological phenomenon. A certain predisposition or susceptibility to a comparatively easy break in the general planful scheme of the biological organism may possibly run in strains. It does not, however, follow that such strains will develop tumors generation after generation. As a matter of fact, the contrary seems to be the case. To go around under the influ-

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ence of a suspicion or of a fearful expectation that one may develop a cancer of the stomach or of the breast just because one's great-grandfather died of a cancer of the stomach, or because one's aunt had her breast amputated is utterly groundless. Such depressing suspicions and expectations, groundless as they are, lead to undesirable mental habit formation or even to a serious mental breakdown. The sooner one disposes of such thoughts, the better for the person directly concerned and for all those with whom he or she may be coming into association.

In conclusion it should be stated that there has been formed in this country, by the best men involved in the field of tumor pathology, an organization called "The American Society for the Control of Cancer." Its headquarters are in New York City. What the purposes of this organization are can be inferred from its name.

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Oldest Investigations on Origin of Dropsy[1]

By Max Neuburger, M.D.

Among the problems of pathology which could be subjected to animal investigation, even at the outset of experimental research, was the question, what is the origin of dropsy?

Although, even in antiquity, more or less lucky forecasts of the true state of affairs came forth, it was only after the discovery of the circulation of the blood that a scientific attack on this problem was possible. The first experiments which, through their apparent ease of success were eminently suited to establish the experimental method in other fields of pathology, are associated with the names of two investigators, both Englishmen, Richard Lower (1631-91) and Stephen Hales (1677-1761), who rendered pioneer service in elaborating the Harveian teaching.

Lower, as his celebrated *Tractatus de corde* shows, was concerned, not only with most exhaustive investigations of cardiac anatomy and physiology, but also—and this is of particular interest to us at present—with the pathological changes of the blood circulation, and he did not fail to study some of its more important aspects in an experimental way. He observed, for example in dogs, the sequelæ of section of the vagus nerve, of compression of the descending aorta or ligation of large veins, such as the vena cava or the jugulars, and employed the phenomena elicited by such means to elucidate the semeiology of disease.

The latter animal experiments (ligation of the large veins) would, if one of the most important causes for the origin of hydrops were worth investigating, lead him of necessity on the direct path to the recognition of the nature of stasis œdema.

It would be an historical error, however, to state that Lower started to attack this problem *a priori*. It rather occurred to

[1] This and the following essay are advance chapters from *Essays in the History of Medicine* by Max Neuburger, Professor in the History of Medicine, University of Vienna. The volume, which will be published next month by Medical Life Press, is edited by Fielding H. Garrison, Lecturer on the History of Medicine, Johns Hopkins University. The edition is limited to 850 copies, and each copy contains a portrait autographed by Dr. Neuburger.

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him only toward the end of his experiments, when his final results reminded him of the hydropic states observed in man. In his time, and to some extent even much later, the view still prevailed that all dropsy was the result of laceration of the lymph and chyle vessels.

On one occasion, when he tightly ligated the jugular veins of a dog, he observed that after two hours all parts situated above the ligature were intensely swollen, so much so that, within two days, the animal perished from suffocation, "*quasi angina suffocatus.*" At the same time, he noticed greatly increased lachrymal secretion and salivation ("*non aliter quam si mercurio assumpto fluxus ille concitaretur*"). At necropsy, he expected the swelling to be due to nothing more than extravasated blood. To his great astonishment, the actual discovery did not correspond in the slightest degree with his conception. Instead of being filled with blood, the muscles and glands appeared tightly swollen with serum. From this result, Lower drew the logical conclusion that in consequence of the impeded passage of the blood, the serum, or thinner constituents, became separated out through the vessel walls as through a filter, while the thicker portion simply stagnated.

A less talented investigator, or one prepossessed by doctrinaire prejudice, would have stopped with the simple fact observed. Lower, however, being reminded of the dropsical states of ascites and anasarca, applied it immediately to pathology. He modestly leaves it to others to judge if the phenomena noted in the experiment, and their causes, might not have a bearing on the explanation of dropsy; for his part, he would be simply satisfied, on the basis of his investigation, with total repudiation, of the assumption that dropsy was in all cases due to the tearing of the lymph vessels. The refutation of this wide-spread assumption was further supported by experience with dropsical sheep. In the cadavers of these animals, especially suitable, as they were, for the study of the lymphatics, the lymph channels were found to be distended and intact.

Another experiment revealed the manner in which dropsy could occur, even more distinctly than by the ligation of the jugular veins. This was the ligation of the vena cava. Lower

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went about it in the following way. He opened the thorax of a large mastiff, ligated the inferior vena cava, and sewed up the wound. Soon afterward, the animal became limp and died in a few hours. At necropsy, a large amount of thin fluid was found in the cavity of the abdomen, just as if the dog had had ascites for a long time (*"non aliter quam si ascite diu laborasset"*). Supported by his experience on ligation of the jugular veins, Lower was now aware that this transuded fluid had accumulated in consequence of hindrance of the passage of the blood from the arteries into the veins, and therefore regarded the detailed publication and description of this research as of quite special importance for the theory of dropsy.

The revolutionary significance of these experiments, and their interpretation by Lower, can be appreciated by following the literature on dropsy in ancient times. Our entire modern knowledge of stasis edema rests, in the last analysis, on Lower's research.

Its value was moreover very quickly recognized and never again left unheeded. As evidence of its early recognition, I need only refer to a biography of Wepfer, a German contemporary of Lower, which appeared in 1727. Here Wepfer's illness is described in detail, and in explanation of cardiac symptoms, especial attention is given to the experiment of Lower.

What Lower did for the understanding of stasis œdema, Stephen Hales accomplished later for the fathoming of that other kind of dropsy designated as hydræmic or cachectic edema. Modern investigations indicate that hydræmia is a factor in the production of this condition, but not its exclusive cause. A minority among the followers of von Recklinghausen and Pisenti in the field of animal experimentation hold fast to the view that the so-called hydræmic œdema is brought about merely through an absolute increase in the amount of water. It was previously believed that the basis for cachectic œdema lay simply in a dilution of the blood and corresponding impoverishment in solid constituents, a view which Hales, in a fundamental research, seemed first to support.

The celebrated English plant physiologist, Stephen Hales, as is generally known, has acquired a prominent place among

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the masters of experimental science of all time, through his ingeniously devised experiment for measuring the blood pressure, and particularly through his introduction of physical methods in the teaching of the circulation. Although not a practising physician himself, Hales took pains to put the teaching of disease, at least in part, upon a more substantial basis. In his excellent masterpiece, *Statical Essays, containing Vegetable Staticks, Haemostaticks; or an Account of Some Hydraulical and Hydrostatical Experiments, made in the Blood and Blood Vessels of Animals* (London, 1733), an abundance of animal experiments are described, from which conclusions are drawn for pathology, or which were deliberately undertaken with the intention of imitating morbid conditions.

To go into this more closely would lead us too far; we would simply point to a few of the themes treated. Among these are investigations on the relation of blood pressure to respiration, muscle movement and blood quantum, on different causes and results of heightened or lowered blood pressure (produced by compression and dilatation of the abdominal vessels), and on collateral hyperæmia. Worth mentioning, too, are observations on blood letting, sweating in high-grade anæmia, and experiments from which conclusions are drawn concerning thoracocentesis, and the pathology of pleuritis, pneumothorax, asthma, etc.

Of interest here is the fact that Stephen Hales, too, brought the problem of dropsy nearer to solution by means of an animal experiment. Like Lower, he started with another purpose, viz. to determine the effect caused by the injection of fluids into the vascular system. By means of funnels connected with the carotids through tubes, he proceeded to pour warm water into the vessels of the experimental animal (a dog) from a height corresponding to the blood pressure. Previously he had opened the jugular veins. The water had the temperature of the blood.

He discovered, first, that the animals suffered proportionally as the blood became diluted, and at a high degree of blood dilution, collapsed, from which he concluded that what kind of fluid circulates in the vessels is not immaterial for the maintenance of life.

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After more than half an hour of continuous pouring of water at the temperature of the blood into the carotids, the body of the dog swelled more and more, and became dropsical in the abdomen, and between the hide and flesh of the whole body as well ("so that there would be a universal Dropsy of the whole Body; both the Ascites and the Anasarca"). Moreover an increased secretion from the glands occurred, particularly the salivary glands, the mucous glands of the nose, etc.

In his conclusions, Hales identifies these phenomena with certain kinds of dropsy, and feels that the dropsical fluid had by no means resulted from tearing of the lymph vessels. More likely a penetration of the pores of the arteries by the serum took place, as the entrance into the finest arterial branches was impeded by their elasticity. This impediment could be overcome only by a continuous chain of blood corpuscles.

In the necropsy of experimental animals of this sort, lungs, liver, spleen, intestines, kidneys and bladder, Hales investigated the different internal organs. He found their condition as described in subjects of dropsy.

In his inferences for pathology, he depicts with great detail the after effects of alcoholism.

The experiment of Hales, like the investigation of Lower, was taken up in the literature and frequently cited. Both strongly indicated that the theory of dropsy, stasis œdema and cachetic œdema could soon be removed from the field of speculation.

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Precursor of Doctrine of Internal Secretions

By MAX NEUBURGER, M.D.

If one compares in retrospect the opinions accumulated in course of time concerning the founder of vitalism, one finds that his reputation, no mean one from the very start, has grown continuously as the support gained by historical criticism from advances in biological knowledge became measurably wider and broader. Not only did Bordeu exert a lasting influence on Barthez, Pinel, Bichat and Broussais and thereby on the general development of French medicine towards the close of the 18th century, and the beginning of the 19th, but physiology, advancing along an exact course, signalized many of his ideas, long ridiculed as bizarre phantasies, to be genial anticipations of the truth. We need only remember that the views of Bordeu on the mutual relationship of parts of the body endowed with a "vita propria," on nervous centralization, on the functions of the glands and their dependence on the nerves, and on brain centers,[1] have found confirmation from subsequent researches in surprisingly full measure. In keeping with his undisputed prominence, Bordeu's main contributions to medicine have not failed of due recognition and careful analysis at the hands of medical historians. We may therefore dispense with any accounting of his life, his creative activity and his many-sided intellectual pursuits, and confine our attenton to the special topic which is the title of this article.

Biedl, in the historical introduction to his well-known work on internal secretions (Berlin and Vienna, 1910), pays indeed a strikingly glowing tribute to the great disciple of the School of Montpellier, but does not adequately characterize his unique

[1] Œuvres complètes de Bordeu, précédées d'une notice sur sa vie et sur ses ouvrages par M. le chevalier Richerand. Paris 1818. Tome 1, p. 201-202. "We are led to believe that every organ has an impulse coming from the brain, which itself is so constituted that its different parts have different functions and in some measure control the corresponding nerves, so that what takes place in the organs is but the effect and image of what first occurs in the brain. *In a word we believe that functions begin first in the brain, which is divided into as many departments as there are organs.* And it is so constructed that it stimulates this or that organ and regulates this or that function through what occurs at the origin of the nerves of the organ; this may be but a more or less pronounced action of a certain part of the blood vessel, etc." In connection with Gall it is to be noted that this passage occurs in the work published in 1752, "Recherches anatomiques sur la position des glandes et leur action" (f. 130).

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position when he says that Bordeu ascribed the effects of the removal of the sex organs and various other affections to a deficiency or a superabundance of glandular principles (l. c. page 4). As a matter of fact, Bordeu came far closer to present views, as Grasset and I already pointed out some years ago.[2] Indeed, we may assert that no other medical writer[3] can more deservedly be regarded as the precursor of the theory of Brown-Séquard. For it was Bordeu who, in his *Analyse médicinale du sang*, first expressed the view that *every organ*—not merely the glands—*serves as a factory of a specific substance, which enters the blood stream and that these substances are of the greatest importance for the integrity of the organism.*[4]

In proof of this we may best let Bordeu speak for himself by the simple repetition of his most pertinent utterance:

"What I believe with certainty is that every organ, occupying its own nook, as I have just said, and living its own life—every organ diffuses about itself, into its environment and its particular system, exhalations or certain emanations, which have taken on its characteristics, are integral parts of itself. I do not regard these emanations as useless, or of purely physical necessity. I believe them useful and necessary to the existence of the organism as a whole." (Œuvres complètes, ii, p. 942).

"I conclude that the blood bears within itself extracts of all the organic parts, each of which components, I repeat again, are necessary to the well-being of the whole, possessing specific qualities and properties beyond the reach of the chemists' experiments (l. c. p. 943)—*each (of the organs) serves also as a factory and laboratory for a specific humour, which it returns to the blood after having prepared it within itself and imparted to it its own intrinsic character.*"

As appears from these citations, it is certainly no exaggeration to say that their content is practically identical with the modern views originating with Brown-Séquard. Even the

[2] Grasset, Le renouve au médical, Janus, 1900, p. 887. Neuburger, Zur Vorgeschichte zweier physiologischen Probleme. Address before the Versammlung deutscher Naturforscher und Aerzte, 1902, (Janus, 1903).

[3] On the interesting and remarkably correct views of Swedenborg, cf. my paper; Some Important Accordances between Swedenborg and Modern Physiologists (in Transactions of the International Swedenborg Congress), London, 1910.

[4] The first part of the work Recherches sur les maladies chroniques, of which the article, Analyse médicinale du sang in the appendix or 6th section, appeared in the year 1775.

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author's mode of expression requires but slight modernizing. We have, at the same time, Bordeu's views as to the route of absorption of the hormones, as we now call them. In some instance, the lymph channels, although very inadequately known in the author's period, are considered but he regards the tissues, in the broadest sense of that term, as the chief locus of interchange of body fluids.

"This assertion as to continual emanations from each organ into the blood I regard as medically proven. If it were possible to turn to account the discoveries of the anatomists on the existence of the lymphatic veins, I should say that for this gelatinous liquor" (Bordeu is speaking here of the secretory product of the testicles) "there are provided special vessels to effect its more certain delivery into the main blood current, with the specific properties which it has acquired in the inner tissues of each organ, to impart to the chyle, in the thoracic duct, the properties characteristic of the part of the body from which it is derived" (l.c., p. 943).

That the venous blood of the individual organs shows great qualitative differences Bordeu assumes to be beyond doubt, although this fact came to exact proof only much later. "But examine the blood returning from each principal region—it is evident that each has specific properties which it has acquired in the tissues of the parts from which it returns." (l. c. p. 942).

To apply the above mentioned physiological premises to pathology seemed but natural and it is therefore not surprising that Bordeu should ascribe a number of diseases to *anomalies of secretion.* As types of such *"cachexias"* he postulates the following (of course this proves him to be a true son of his time), biliary cachexia, mucous, albuminous, buffy coat cachexias, lacteal cachexia, fatty cachexia, serous cachexia, urinary cachexia, splenic cachexia, stercoraceous cachexia.

"I postulate as many specific cachexias, as many principal mixtures of the humours as there are distinct organs and different humours. The mucous tissue in particular seems to me to be the seat of most of these cachetic revolutions, if I may so express myself. Moreover there is no gland which does not draw from the cellular tissue around it a large amount of serosities . . . these serosities commingle with the specific humour formed and secreted within the gland. Now these serosities, not being always supplied as they are needed, come to a congestion, a cachexia which flows back into the

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humours and inundates the whole region. . . . *It remains for physicians to follow up and to classify the various refluxes consequent upon the defective functioning of each particular organ.*"

Rather than follow our author along the rather precipitous path of the "cachexias" let us rather inquire into the particular arguments upon which he bases his teaching that *every part of the body pours into the blood specific emanations and that these contribute to the undisturbed maintenance of the entire organism.* Here, it should first be remembered that Bordeu (after due reflections on the structure and functions of the glands) rejected the crude chemism and mechanism of contemporary physiologists, and assuming a vitalistic harmony. He attributed to every individual part of the body a *vita propria,* a specific sensation and movement, a special function correlated with the particular structure, *a specific metabolism.*

"It must be remembered that each organic part of the body, having its own way of living, acting, feeding and moving, according to its taste, structure, internal and external form, smell, weight, and mode of growth, of expanding and retracting, each takes part, in its own way and for its own environment, in the sum total of all the functions or the general life; each, in short, has its own life and functions different from all the others." (l. c. p. 942).

This metabolic process conditions a constant building up and breaking down within the individual organs, with a specific nutrition and a specific excretion, which reaches the circulation and brings about the tremendously complicated composition of the blood, which defies chemical analysis.

"Another fact deserves our attention. It was claimed of old that each part purges and cleanses itself by vital movements, that it cannot feed itself and choose its particular nourishment from the mass of humours without producing, as the result of the work carried out within itself, excrements, like scoriæ, of which it rids itself. I believe that such is the truth. This separation takes place everywhere. . . . I assert that this *excrementitious* vapor, which long retains certain properties peculiar to the part from which it derives, floats in the humours and more or less dominates them, that it incorporates itself with them and takes part in the formation of the whole compound resulting from these diverse mixtures, of the totality intimately peculiar to each species and each individual" (l. c. p. 976).

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Although the doctrine of the *vita propria* in itself led to Bordeu's theory, yet more practical observations, especially in the field of sex, furnished the decisive evidence: the well known deficiency phenomenon resulting from castration effects, the manifestations of puberty, etc., which indeed for a long time had been attributed, partly to a deficiency, partly to an excess of substances which normally are given off to the blood by the sexual organs. Bordeu, to be sure, could not as yet differentiate, of course, between semen and the substances of internal secretion; in his view, the semen itself reaches the blood. The *aura seminalis* exerts a stimulating influence upon the whole organism, while anomalies are to be explained on the basis of an increased or insufficient penetration of the gonadal secretion into the body fluids and thence into the tissues.

"The semen imparts, as it is well known, a firm, masculine tone to all parts, as soon as it can be drawn off and sent into the humours and solids by its natural organs. It sets a new seal upon the animalism of the individual, who is in part subject to the action of this creative liquor" (l. c. p. 942). —"Eunuchs, losing the ability to procreate, lose all that special odor peculiar to the male, their strength decreases, their pulse loses its bound, the activity of their mind diminishes: nevertheless they grow like other men, and even relatively more so; they become fatter; their flesh becomes softer; they are less constipated; their eyesight is less keen. What happens to their voice is well known and about the same changes are observed in animals that have been castrated. On the other hand, in men enjoying all their natural rights and who easily secrete their semen, this liquor penetrates the mass of the humours. . . . It has the property of consolidating the parts and of nourishing them. It excites and stimulates all the fibres. It is the cause of that fetid odor exhaled from vigorous males. It produces wonderful effects: in a word, it must be considered as a special *stimulus* of the machine (*novum quoddam impetum faciens*), which physicians have not sufficiently considered."

"The *aura seminalis* serves more than the other liquors as a link or intermediary between the body and the mind." (l. c. p. 959).

Bordeu extends his theory of stimulating substances passing into the blood from the gonads to the *female sex* and refers in this connection to observations on castrated female animals and on sterile women, who are supposed to differ in many respects from women who have borne children.

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"A eunuchoid woman is not an inconceivable phenomenon. It is customary in some provinces, to spay, as it is called, young pullets. This operation deprives them of the capacity to lay eggs, so that they shun the rooster. The floating horns of the uterus, which border on and join the ovary in copulation and ovulation, are severed. It is an established fact that the habits of such fowls, the taste of their flesh, their fat, are markedly affected by the operation performed upon them, just as in the case with young sows. This operation seems to be equivalent to castration in males. These mutilated females lead, like capons, a sad, lonely, melancholic life; they shun companionship and pass their days in seclusion. Like capons, they serve during their life but to raise the offspring of others. I have seen some of them shunned and disdained by the most fiery cocks. Others, however, were more tractable and did not seem averse to the tilling of an ungrateful and sterile soil. These phenomena prove that females may, like males, receive from the generative organs a vital impulse which stimulates and influences them. This is certainly also true of woman." (l. c. p. 950).

The purpose of this sketch is merely to call the attention of professional circles to the original work. In this is to be found a wealth of interesting observations and suprisingly advanced ideas. But even from the presentation given, it is plain that no one up to Claude Bernard, indeed up to Brown-Séquard, is so suggestive of recent views on the internal secretions, their physiological and pathological significance, as Bordeu.

What separates him from Brown-Séquard is merely the disparity between the precursor and the founder of a doctrine. In the light of an objective historical study, however, such disparity turns out to be more often a consequence of a long preliminary scientific training than a special effect of personal intellectual superiority.

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Impressions of American Psychiatry[1]

By EDWARD MAPOTHER, M.D., and A. A. W. PETRIE, M.D.

I.

It is almost traditional to start a paper on such a topic as mine by quarrelling with the title. I propose to be traditional though I admit deliberately accepting the title proposed by the Secretary for the opportunity it gives to make two preliminary points.

My first point is complete acceptance of the term "impressions." In August and September, 1929, through the generosity of the Commonwealth Fund, I visited the United States and Canada, and was six weeks ashore. The itinerary devised to suit my generalized purpose included visits to ten principal cities containing large Universities in ten of the United States, and to Toronto and Montreal as comparable cities representing two of the provinces of Canada. These cities represented only those lying along the Atlantic coast as far south as Washington (which is practically the border town between the Northern and the Southern States), and those of the United States and Canada lying in a fairly straight line along the Great Lakes as far West as Chicago. Obviously the States and Provinces which I sampled, represented only a trifling fraction of the area of the United States and Canada. But the total population of these States and Provinces is well over 50 millions, while the total population of the cities visited is over 15 millions. Moreover, anyone who has followed the itinerary which was devised for me can claim to have sampled those cities and States where most (though certainly not all) of the most interesting psychiatric activities of the Continent are concentrated.

In virtue of the courtesy and hospitality which I received through the influence of the Commonwealth Fund and through the wonderful traditions of America in such matters, I had ar-

[1] One of the most valuable publications that comes to the editor's desk is the *Proceedings of the Royal Society of Medicine*, (Longmans, Green & Co., Ltd., London). It deserves to be widely read in America. The June issue contains excellent historic and therapeutic material. We reprint from this number, "Impressions of American Psychiatry," so our psychiatric readers may see themselves through British eyes. The first paper is by Dr. Mapother, and the second by Dr. Petrie.

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ranged for me in six weeks, seventy-five interviews with administrators or visits to institutions. Without assuming any credit I can therefore claim to have had a bird's-eye view of a large section of American Psychiatry presented to me.

I know quite well that the mental cookery following such an intake is likely to be disturbed. Nevertheless, I think in such a paper as this some generalizations—even half-baked ones —are likely to have more nutritive value than a psychiatric Baedeker, even if this were starred in the usual fashion.

I have drafted a classified list of persons interviewed and places visited in different connections, in case this might be of any use to anyone visiting U. S. A., but I shall make no further reference to that here. I hope to publish elsewhere a rather more detailed consideration of some aspects of the American situation.

Next I come to the only objection I have to the title "Impressions of American Psychiatry," viz., that there is no such thing as American psychiatry any more than there is an entity called European psychiatry, including that of Britain and Bulgaria. In deference to Bulgarian psychiatry, I hasten to say that I only couple the names of Britain and Bulgaria as extremes of distance within Europe and not for a moment as representing extremes of progress. But it is fundamental to understand that there is no less independence and no less variation in maturity of psychiatry between American than between European States. There is no federal unity whatever in this matter. Psychiatric arrangements of every kind represent forty-eight entirely separate experiments. No general law exists and there is nothing official which is comparable to the Board of Control as a national and standardizing agency. The same is true as regards the Provinces of Canada. The nearest approaches to any unifying organizations are the National Committees of Mental Hygiene, which though supported by voluntary funds, have been asked to undertake surveys of the situation and the requirements in various States and Provinces, and which endeavor by propaganda everywhere to raise the standards of care, treatment, education and research.

In some ways, unofficial bodies, such as these National Com-

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mittees of Mental Hygiene, if of good repute, have advantages over organizations like the Board of Control. Their appreciation of situations may be more comprehensive than the routine ones of the official bodies because they more readily get access to places out of the official orbit and they are able to express their real views and say what is needed, just because their statements have no official consequences. Hence they are not obliged to defer to the political and financial situation of the moment. Nothing is more badly wanted in England now than an organization really corresponding to the National Committees of Mental Hygiene, in America and Canada.

The purpose of my visit was not to see a truly representative sample in a critical spirit. I was admittedly out to see all that was best and most interesting—the "high spots" as they are called locally. Therefore any generalizations which I may venture apply only to what I saw, and for the most part to psychiatry in America at its best. Only in special conditions shall I refer to what seem backward arrangements. I shall make no criticism of American arrangements that is not really a quotation of expert opinion there.

I want specially to emphasize the topical features of American psychiatry. The Mental Treatment Bill seems likely to be this generation's contribution to progress or reaction. It has reached a fairly definite form now. There are many points about American arrangements which throw a flood of light on the situation foreshadowed by the Bill. I know of no evidence that American arrangements have been considered before drafting: this would probably be contrary to tradition. I must also say that in the part of America which I visited I saw an amount of psychiatric research in progress that one could not possibly equal in a similar tour of Great Britain. I do not profess to estimate the ultimate importance of anything I saw. Results that really make a difference are of course the product of a very few minds in each generation. As to opportunities for solid, steady contribution to knowledge, America is incomparably ahead. One can usefully discuss in a cursory way such opportunities though not achievement.

Passing from preliminary discussion to impressions, it

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appeared to me that the outstanding differences of psychiatry in America included four factors and one main resultant. The four factors were as follows: (1) The enormously rapid growth of population. (2) The extent to which official psychiatric provisions at public expense are supplemented by bequests, donations, and above all, grants from such sources as the Commonwealth Fund and the Rockefeller Foundation. (3) The degree in which the American psychiatrist is master in his own house—a degree which is unthinkable in our lawyer-ridden land. (4) The far wider diffusion and the much higher level of psychiatric education of all kinds in America. The main resultant of these factors is the greater tendency in America to look upon the existence of mental disorder as a problem to be solved rather than a burden to be borne. The rest of my paper will be devoted to amplifying evidence concerning these factors and this resultant.

(1) Rapid growth of population means that institutional provisions, at least for mental disorder, tend always to be in arrears. Results are good, bad, and doubtful.

Good Results.—In general it may be said that the shortage reduces steoreotypy. It affords frequent opportunities for embodiment of new thought by addition of new institutions and of new features to old ones. It promotes a tendency to try legitimate substitutes for institutional treatment and even to expend money on attempts at prevention and cure. Among the many excellent things that have largely resulted from institutional shortage are the extramural activities of the State Hospitals and State Schools. The Clinics based on these institutions deal largely with cases of mental disorder and mental defect in which the patients, under supervision, are able to stay at large, whether after a period in a State hospital or without this.

Bad Results.—Among these are: (*a*) Overcrowding, almost everywhere. (*b*) The need in some places, to treat many cases of transient and incipient psychosis in the city gaol. (*c*) Discharge of patients in some places by lay and legal authority in disregard of Medical Superintendent's opinion, to make room. (*d*) A tendency in some places to reserve institutions for the

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worst and most antisocial cases of both mental disorder and mental deficiency. (*c*) Delay in providing public hospitals for minor cases of both conditions; this is usually rationalized by a general claim to have discovered the fallacy of early treatment.

In Massachusetts—the most progressive State—mental deficiency institutions are unclassified, unlike those of London, anyhow. Massachusetts is interesting and logical, at least in that it justifies the mixed institutions for mental defectives by the very same arguments that in London are thought to justify mixed mental hospitals, arguments which do not prevent mental deficiency institutions here being graded.

Doubtful Results.—Among the tendencies due to institutional shortages which are doubtful, is the very high proportion of cases of both mental deficiency and insanity which are on parole with friends, e.g., nearly 5,000 out of 45,000 insane, for whom New York State is responsible at any given time.

It is doubt of the consequence of this system from the eugenic standpoint, even when coupled with extramural supervision, that is probably responsible for the legislation which, in twelve States, combines sterilization with probation and supervision. I do not intend that my indiscretion shall go to the length of discussing sterilization here.

(2) The second factor in promoting the progress of American psychiatry is the extent to which it has been fostered by bequests, donations, and especially by the continuing generosity of the Commonwealth Fund and the Rockefeller Foundations. Much is due to the enlightenment with which this generosity has been applied; the wise use of these funds is the ideal corrective for the politician's tendency to think, financially, with reference to the next election rather than to the next generation. In most places in America, State provision has perhaps necessarily concentrated on the worst cases of mental disorder and mental defect. The Commonwealth Fund and the Rockefeller Foundation, collaborating largely with the National Committees of Mental Hygiene of America and of Canada, have concentrated on a triple programme:—

(i) Promotion of the advanced training of psychiatrists and of research, by the grant of fellowships at centres like the

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Phipps Psychiatric Clinic and the Boston Psychopathic Hospital.

(ii) A programme of prophylaxis and of early treatment of minor divergences by means of out-patient clinics and of propaganda. As regards adults, one of the most striking movements is the provision of mental hygiene facilities at the universities as part of the health service which is a recognized provision for undergraduates.

(iii) The greatest development which owes its growth, though not its birth, to private generosity, is the Child Guidance Movement. This has been discussed so lately by the Section at a joint meeting with the Section for the Study of Disease in Children (*Proceedings,* 1930, xxiii, 573), that I propose to say nothing here except that there can really be no doubt about its influence in, at least, reducing unhappiness during childhood, and in averting the anomalies of character that are continuous with definite neurosis and with criminality. These foundations in America have always observed the wise principle that the rôle of private endowment is to give a start to promising novelties and to insist that when a given service has proved its case as a need of the community, then the time has come for the community to provide that service and to finance it locally whether by taxation or by voluntary contributions. It may be rank heresy, but the policy of the American foundations leaves me wondering whether progress might not be faster in this country if private generosity could be directed more to new ventures and less to established institutions (such as voluntary hospitals without medical schools to justify them). These would inevitably exist as a public service if not privately supported.

Despite all that psychiatry owes to the major foundations of America, I want to stress the fact that our national shortage of millionaires is not a complete excuse for the gap between the best organizations in America and the best in England. Anyone who doubts the gap should make a careful study of the whole system under the Department of Mental Diseases for the State of Massachusetts, including its provision for research. This system owes comparatively little to private benefactions.

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The Institute of Juvenile Research in Chicago is also a splendid organization for Child Psychiatry, supported wholly by the state of Illinois.

(3) The emancipation of the psychiatrist, the replacement of the static mind of the lawyer by expert knowledge in control, is the great guarantee of the future in America. This transfer of control is most complete in the most highly organized and most progressive States such as Massachusetts and New York, and all tendency to question it, even by lawyers, seems to have disappeared. Before detailing the way in which the psychiatrist in America has secured the management of what are indisputably his own affairs (i.e., arrangements for the neurotic and psychotic), one may just refer to the way in which he is getting a voice in dealing with another form of mental disorder, viz., criminality.

In Detroit there is attached to the Recorder's Court (handling nearly 10,000 felonies and 30,000 misdemeanors a year) a complete psychopathic clinic with two psychiatrists and a group of social workers and psychologists. To this clinic about 1,000 cases per annum are referred, felonies and misdemeanors in about the ratio of their occurrence. The reference may be:—

(*a*) Before trial, as to responsibility. (*b*) After trial and before sentence, whether this sentence should be commitment to prison or reformatory and, if so, for how long; or on the other hand should be probation with supervision. (*c*) For guidance as to problems arising while on probation.

The Court follows the Clinic's recommendation in nearly 90 per cent. of reference cases. Any difference consists almost wholly in the Court taking less severe courses than those recommended by the psychiatrist. This is a good answer to the view that asking the psychiatrist means coddling the criminal. Ninety per cent. of cases where probation is advised by the psychiatrist keep straight during this. The general usefulness of such reference is shown by the fact that even offences in connection with driving motor cars are found to have clear correlation with mental disorder; I rejoice to say they are not pathognomonic. Similar arrangements exist at Cleveland, Ohio. Here the psychiatrist was not a whole-time officer of the Court when

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I visited, but it was being considered that he should become so, since of all cases coming before the Court a large proportion were referred to him.

Next, one should note that in the two most advanced States of America, the commissioner at the head of the department of correction is a psychiatrist. This department is responsible, under the Governor, for all penal arrangements, as is the Home Office in England. In the State of Maryland the Commissioner for Mental Diseases has authority to transfer any person from prison to a mental hospital—which constitutes an absolute power to adjust punishment except that of death. Nobody seems inclined to question these arrangements.

Passing to arrangements for prevention and care of neuroses and psychoses—those mental disorders which are universally accepted as such—one should first note the arrangements for the future in England which will follow the Mental Treatment Bill. Hitherto the medical element of the Board of Control has been equal to the legal and lay. Hereafter it is only secure that one of the "Big Five" who are to settle all policy shall be a doctor. A proposal that he should necessarily be a psychiatrist was negatived by the Select Committee of the House of Commons. The position of the only other doctors connected with this new Board of Control was neatly summarized by the statement that they were to be the servants or alternatively the hands and eyes of the "Big Five"—who presumably will combine the functions of brain and mouth.

With this may be compared the position in the most advanced States of America—Massachusetts and New York. Here all psychiatric provision and supervision are entirely in the hands of a State Department. There is no triplication of function as hitherto between Board of Control, County Council and Guardians, or even duplication as now, between Local Authority and Board of Control. There is a simplification which may be roughly compared to that which would exist if all public provisions for psychiatry had to the Board of Control the relation which Rampton now has. In other words, the State Department is responsible for everything; in respect of public institutions, for all rules, supervision, management, and obtain-

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ing from the legislature the necessary funds for provision and for maintenance; and in respect of private institutions, for rules and supervision. But over this Department for Mental Diseases is a permanent head—the Commissioner—with powers far exceeding, in every way, those of the Board of Control, having direct access to the Governor of the State without intervention of any Minister or other politician and, through him, access to the legislature.

It is definitely laid down by law that the Commissioner shall be not only a doctor but a psychiatrist, with at least five years' institutional experience, and though nominally his tenure may cease with that of a particular Government, in practice it is permanent. The progressive States of America no longer make political appointments to such posts, or attempt to influence the decisions of the psychiatrists who hold them by political considerations. America has also discarded the system whereby the senior civil servant desiring such promotion is thought fit to direct the activities of the State in respect of psychiatry, when a vacancy occurs, regardless of previous knowledge or experience of the subject! In America, such appointments now only occur as examples of corruption in backward States. On the best authority, I understand that in practice the Governor and the Legislature in American States consider that their province is limited to deciding how much can be appropriated for new projects of the Department, and whether the general financial situation permits of finding the money needed for the proposals advocated by the Commissioner of Mental Diseases. Apparently, detail is left to him entirely, and even the order of priority of his proposals. With this may be compared, by those with time to spare, the official reports of the discussion upon the Mental Treatment Bill. America has apparently lost our English faith in settlement of technical detail by the inexpert.

Within the Department of Mental Diseases in Massachusetts there is no lawyer, except one concerned in recovery of contributions due from relatives of patients. There is no layman except the woman at the head of the Social Service Division, the assistant commissioners and the heads of all other divisions are psychiatrists. Of these the commissioner is chief, with almost

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autocratic powers in reserve. His immediate subordinates—each in charge of a division of the department—are what we should call in England "Deputy Medical Superintendents," seconded to headquarters. On occurrence of a vacancy as Medical Superintendent, one of the assistant commissioners goes back to run the mental hospital, another deputy-superintendent comes up to headquarters. Every month in Boston a dinner is held (subject to the 18th Amendment), and attended by all the superintendents and all the assistant commissioners, with the Commissioner in the chair. At this, free discussion of official matters is encouraged. The whole scheme seems ideally adapted to reduce to a minimum the gap between regulations and reason constituting the "headquarter spirit" with which so many of us first became familiar in the war.

The Fourth Factor.—The fourth factor in the American situation is the extraordinary difference between psychiatric education of all kinds there and here. The education of the public has reached a point at which the man and woman in the street know about the existence of mental hygiene services, and are prepared to utilize these for their children and even for themselves.

One of the most interesting educational projects in America—a counter-blast to excessive specialism—is the foundation of the "Institute of Human Relations" at Yale. Here it is intended that as the preliminary of their professional training, the future doctor, lawyer, clergyman and others whose business is the handling of people, shall get a common grounding in at least the elements of biology, physiology and psychology, including among the practical derivatives of psychology, sociology and some psychiatry. It is intended to make of this psychobiology an essential common groundwork, almost as we build on a foundation of dead languages.

As to pre-graduate medical education in psychiatry, there is here no university or medical school which approaches in thoroughness that which is universal in at least ten American universities. In these universities comprehensive courses are given in each of four years of medical training—a real grounding in medical psychology and psychopathology in clinical psy-

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chiatry by lectures and demonstrations, and in personal study of patients by allocation of definite cases of neurosis and psychosis, but above all by direction of attention to the psychiatric aspect of those illnesses seen in the ordinary wards and clinics. In Columbia the position reached is that as much time is devoted to study of psychiatry as to that of each of the other major subjects—medicine, surgery, and gynæcology. Since quite similar situations exist in Germany and Holland and in progressive European countries generally, it seems doubtful whether the thinly veiled pride which the run of English practitioners take in their ignorance of psychiatry is really referable to our genius for practicality.

There has hitherto been no diploma in psychological medicine in America, but I know that Professor Adolf Meyer is interested in the institution of such a diploma, possibly one in each State, with equal standards.

For acquisition of technique from those actively engaged in various branches of research, and for really advanced teaching, American psychiatrists have of late years mainly gone to Vienna, except in respect of neurology, for which all say the National Hospital, Queen's Square, is the best centre in Europe. In view of the staffing and facilities which will be available in the three psychiatric institutes to open shortly—those in New York, connected with Columbia and Cornell Universities, and that at Philadelphia—the current may well soon flow the other way.

As to the training of mental nurses in America, most of the ideals held up by the Committee appointed by the Board of Control are realities somewhere. The State of New York is enforcing, as a preliminary requisite of nursing, a high school education until the age of 18, the inclusion of general training in the mental nurses' course, and conversely the mental training of both pre-graduate and post-graduate general nurses. All these are common-place.

My impression as to the general differences representing the resultant of the four factors which I have emphasized was as follows: As to psychiatry America is interested chiefly in progress, England in maintenance. American attention is fixed

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mainly on what *will be,* and English on what *has been.* American arrangements often seem unfinished, like everything that is growing, occasionally crude enough to offer an easy target to the scoffer. But efforts limited to maintaining the standards of the past, in psychiatry as in everything, are apt to fail both relatively and absolutely, and fixation is likely to be followed by regression.

In respect of actual structure and maintenance of those types of public institutions which exist in England and of amenities there for patients, I doubt whether America has much that clearly outstrips the best in England. In such respects the most striking places which I saw were Bloomingdale, near New York—what we should call a registered hospital—and a hospital at Northhampton, Massachusetts, run by the Veterans Bureau (or Ministry of Pensions).

If one compares the general maintenance cost of institutions in the States of New York or of Massachusetts with the cost in London, and pays due regard to cost of living in the two countries, then probably one finds little evidence of higher level maintenance in America.

Owing to the wide extramural activities in American State Hospitals, these are much less suspected than their equivalents in England. But though provision for treatment of voluntary patients in the State Hospitals of Massachusetts and New York has existed for many years, the public response is negligible.

In Massachusetts there are practically no voluntary boarders. In New York out of 45,000 State-aided patients, 652 were voluntary. In New York Hospitals in 1927 there were 11,500 admissions. Of these, 5 per cent. were voluntary. Of this 5 per cent., one half were recurrent; of the other half the great majority would otherwise have been there under certificate, while most of the minority belonged to the "hobo" class. This is an illuminating commentary on the Mental Treatment Bill. Clauses 1 to 4, especially when coupled with reassurances given by the Minister of Health to anxious representatives of local authorities that no new expenditure or new building need be feared—that what is intended is treatment of the same types in the same buildings by the same staffs with different formalities.

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It has been said that if private patients in large numbers will voluntarily enter such an institution as the "Retreat," where some other patients are certified, then the poorer classes will resort to the County Mental Hospitals as voluntary patients when this is permitted. American experience shows this to be an utterly false analogy. Such private institutions as Bloomingdale have 70 per cent. of voluntary admissions nowadays—the State hospitals practically none in any real sense. In fact, owing to widespread possession of means enough to pay for a time the cost of treatment outside a State hospital, these American registered hospitals are rapidly becoming the places at which all but the very poor are treated for incipient and transient psychoses.

The actual position is that public provision for the voluntary case by the State is as yet almost as defective in America as in England. The only wholly voluntary institution comparable to the Maudsley is the Phipps Psychiatric Clinic. This is splendid but it is neither State supported nor does it provide in any considerable measure for the poor. Both these remarks apply equally, I believe, to the forthcoming Psychiatric Clinic at Philadelphia and that connected with Cornell University, New York. The other, connected with Columbia University and located in the medical centre, New York, may be more analogous to the Maudsley. As to out-patient departments, three seemed most striking—those of the Phipps, of Boston Psychopathic, and that at Cornell Clinic, New York. This last is run in a general hospital like various departments of the kinds in London but on a paying basis more like that of the Tavistock Clinic, and is well organized and flourishing. As to hospitals undertaking initial observation and treatment of psychosis under temporary detention orders, these are usually managed by the city authorities, whilst hospitals for more prolonged care are maintained by the State.

The Boston Psychopathic Hospital, closely connected with Harvard University by the State of Massachusetts, is exceptional in this as in all else. But splendid as it is, and negligible as are the formalities attending commitment here, the fact that involuntary detention exists in this State institution determines

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that there are few voluntary admissions. This suggests how little importance the public will attach to any difference about admission under Clause 5 of the Mental Treatment Bill. Formalities are reduced at the Boston Psychopathic far below the point proposed by Clause 5; where any patients are detained against their will this reduction makes no difference in the public attitude.

The City Psychopathic Hospitals in many cases have university connections and useful functions in teaching. From the standpoint of the patient I gathered that their repute was not high. Of the Bellevue in New York it is fairer not to speak since it has been decided to abandon and replace the psychiatric part of this. Others that I saw seem better than most London observation wards, but far from ideal. They were mostly constructed of glass, metal tiles and concrete in what has been called "the neo-lavatorial style of architecture." The ease with which they can be washed down with a hose doubtless admirably adapts them to their special function, but it is difficult to reconcile them with a homelike atmosphere.

It is not better buildings or maintenance that constitute the real distinctions of American psychiatry as compared with English; it is the medical spirit by which American psychiatry is dominated, and the constant pre-occupation with treatment and research. An outstanding feature of all American institutions is the number of doctors. Saint Elizabeth's Hospital, Washington, with over 4,000 patients, has 40 doctors, and Dr. White reckons the right proportion to be one doctor per 100 patients.

Elsewhere the proportion accepted is 1 per 150 and 1 per 50 admissions per month. This ratio is just double the number of medical officers in all London hospitals. In reality the amount of medical work possible is much greater owing to reduction of clerical work by the use of dictaphones, stenographers, etc. Scientific work is encouraged by establishment just below the superintendency, of three equal positions—that of administrative assistant, clinical director and pathologist—each providing a satisfactory career. The medical superintendents of the most notable State hospitals have teaching positions. All the junior

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staff are stimulated, not forbidden, to form connections with other hospitals outside.

In spite of this, in America, as in England, there is difficulty in getting doctors of the best quality to take up psychiatry. This exists even in the schools where teaching is best; staff vacancies are not readily filled from the universities with which the psychiatric clinics are connected and candidates have to be sought outside. To some extent the difficulties are declining as the repute of psychiatry grows. But one which remains is creditable to the moderation of the medical profession in view of its control of the situation. Though the numbers of medical officers are high, salaries are low; they seemed on the average to be little higher than in England. Considering the general scale of American incomes, I think this clearly means a relatively lower financial status. It is a pity if this should prevent advantage being taken of the splendid opportunities which exist.

Judged by the standard of recent achievement, psychiatry in America is probably on the whole the equal of that in any country of the world, but it is very uneven in all respects. Hardly anywhere is everything all that one might fancy, but somewhere every improvement that we are merely talking about is in working order, serving as the little leaven that leavens the whole mass. America, like every country, has its cranks, but the people who are directing the development of its psychiatry are not cranks. They have the national readiness to try anything once, but to me they seem to be neither credulous nor given to making claims. In fact, they seemed full of the enthusiasm, without illusions, that is the true scientific spirit. I have had glimpses of the psychiatry of ten European countries. I think the future is more secure in America than in any other country because it is rooted in the four factors of which I spoke. Lastly, in view of the respective estimates of British and American psychiatry prevalent outside the two countries, there is little room for that complacent tolerance towards the enthusiasms and efforts of others which is apt to pass for humorous wisdom in England and seems so maddening to all the other nations of the earth. Those who can may hope that

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the leadership which has produced the Mental Treatment Bill as it is, will somehow secure the expensive supplementary arrangements which alone will make it more than footling about formalities. Others may hope that, if an opportunity for real progress is given to the next generation, it may be based on knowledge of arrangements actually working elsewhere, rather than on lawyers' bogies subtly evolved from the inner consciousness.

II.

The accuracy of the tourist's impressions is notoriously fallacious, and that is particularly so when a great variety of activities of a somewhat divergent order is seen. Personally I went to America to learn, and to look for useful suggestions. I was therefore less on the outlook for imperfections. I set out with a fair number of the usual insular prejudices and I returned with a number of these ideas distinctly modified.

In viewing any similar system elsewhere, some things appear as advantages, some as disadvantages, some as merely doing things differently. Further, even in Canada and the U. S. A., some differences merely reflect the different normal habits of the people.

The cafeteria or self-service system illustrates this. This is a natural development in a country where labor is very highly remunerated. It has distinct advantages in mental institutions, as by providing choice it diminishes waste. It is, however, difficult to introduce in a country in which sane people are unfamiliar with it. Similarly, since electricity has superseded gas in America, it is adapted for many purposes such as cooking, for which gas is used here.

Mental Hospitals.—In discussing these various activities, I will first deal with the mental hospitals.

The chronic patients in the large State hospitals are no better dealt with than in England. Their feeding was much the same, with a possible improvement in the evening meal. Overcrowding existed in many places, although, especially in New England, the original standard of space was fairly high. The chronic sections in the Chicago area and in Manhattan, New York, were noticeably overcrowded. This fact was appreciated

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and new building was taking place. Probably more overcrowding has been allowed than would be permitted here, owing to the fact that the unit of administration is the State, which is its own critic, and is not subjected to inspection and report by an outside body such as the Board of Control. To counterbalance this is the advantage that the office of the Commissioner is part and parcel of the service, and there is free interchange of senior medical officers with the assistants in the State department.

The new admission hospital sections impressed me favorably. A "diagnostic corridor" with rooms fitted for all the various consultants, permitted them to see their patients under good conditions. The huge size of many of the State hospitals renders such complete arrangements easily possible.

The newer separate medical and surgical buildings are good, and together with admission buildings provide an easy method of modernizing old hospitals.

Electrical equipment is generally good, and rather in advance of that in corresponding institutions in England. Hydrotherapy is extensively practiced and is good, but both the bath fittings and warm pack methods would count as restraint in England. Particularly in those States in which mechanical restraint is discouraged or forbidden, the ability to pin a patient up completely in a hot pack or to place him in a continuous hot bath with a stout canvas cover which cannot easily be lifted, accounts for the common statement that padded rooms are unnecessary and archaic.

The staffing arrangements appear similar to those here but the nursing staff is divided sharply into "nurses" and "attendants," according to their preliminary education. As a complete instead of partial secondary education is now being demanded for nurses, this will increase the difficulties in obtaining them and probably result in some training for attendants being adopted. At present mental nurses go for from six to fifteen months for obstetrics, children's diseases and surgery, to the affiliated general hospitals, and then, on passing the State examinations, obtain the ordinary training certificate of the State. While such complete reciprocity will probably never come in England, one usually finds here the other extreme, namely, the

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complete ignoring of any mental training. The connection in regard to nursing staff between the general hospital and the mental hospital is also maintained by nurses from the general hospitals coming for three months' training to the mental hospital. Similar arrangements are of course in vogue in Scotland.

Although no definite course for teaching young medical staff has been evolved, such as the courses for the Diploma in Psychological Medicine, much attention has been given to providing good conditions such as adequate medical libraries. At St. Elizabeth's Hospital in Washington, there are over 11,000 books, well indexed, apart from a large range of periodicals.

The position of a clinical psychiatrist or clinical director is important, as he instructs the nurses and his junior colleagues. The position ranks equal to that of Deputy Medical Superintendent, and is usually on the same footing as that of the pathologist. He teaches, directs and co-ordinates treatment and often becomes a university teacher. The position is as a rule filled by competition, and this ensures that all the treatment is in the hands of an alert, able man, and that an adequate supply of trained teachers is provided for the numerous universities and medical schools. The position supplements the work of the divisional officers, who in America, as in England, control the workings of the male and female sides.

The arrangements for the clinical records are usually good, and dictaphones and other office refinements are used. Occupational therapy generally is good and well-developed, and gymnasium classes are more general than here. Beauty parlors and hairdressing shops have their place in keeping up the self-respect of the patients.

Sense-training classes for deteriorated cases of dementia præcox are important. These have been imitated from the sense-training classes for low grade imbeciles. In each case it results in cases which have reached a low instinctive level and are faulty in habits being trained to be useful in an elementary manner.

Out-patient departments are generally run in connection with the American Mental Hospitals. This is reckoned an ad-

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vantage, not merely from the point of view of the patient, but also because it keeps the medical staff in touch with the early phases of disease. Such out-patient departments are generally run at near-by general hospitals. In the reception units and clinics in the cities, the out-patient department is always in the hospital itself. Efforts are made to serve isolated districts by sending teams of workers to conduct an occasional out-patient clinic in such areas. Generally, however, most of the cases are seen in the regular centres.

A considerable amount of this work is in connection with the extended trial or parole given to the patients. This may last up to a year, and the patient reports as often as is necessary, the intervals varying from once a week up to three months. This gives a longer time to see if the patient has adjusted to external life, but involves much more work and organized social service. Vesting the power of granting trial or discharge directly in the hands of the medical superintendent appears an advantage, and such decisions are usually reached at the staff conferences which are so generally popular there. This appears to work satisfactorily as regards the recovered, and those of whose discharge—whether as improved or not improved—the medical superintendent approves. Where the medical superintendent opposes the discharge, the Habeas Corpus Act appears to be invoked in some cases. Certainly in the case of poor persons the English system of having the visiting committee deciding in such cases appears to be more satisfactory. When the patient is discharged otherwise than as recovered, the principle of imposing legal disabilities on discharge unless the medical officer certifies this to be unnecessary, seems logical and reasonable, and an improvement on the English practice, but unfortunately, where this occurs, the patient has just to cross to the next State to evade any such restrictions.

Terms of Commitment.—These vary in the different States, but are generally not dissimilar to those practised in England, and temporary observation is permitted for from ten to thirty days. Several States have voluntary clauses, but owing to the overcrowded condition of the mental hospitals, few cases are received in the public or State institutions on this basis. Twelve

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and a half per cent. of the 400 admissions at Whitby, Ontario, were received as voluntary patients, and the numbers so received in Boston and New York were distinctly lower. On the other hand, at Bloomingdale, New York, a wealthy foundation for private patients, 70 per cent. of the patients were received as voluntary cases. In corresponding hospitals in England a fair proportion of people are voluntary, and it will be interesting to see, with the new Mental Treatment Bill, if more use is made of the voluntary clauses for public hospital patients than has occurred in America.

The social workers' service appears well organized in individual hospitals, and in New York and New England it is organized in relation to the State service as a whole. Considerable useful work is done, much of which is covered in England by the After-Care Association, and similar voluntary organizations. Both systems have some advantages, but having the service organized from the mental hospital appears to bring the latter into closer touch with the causal and after-care problems.

The size of hospitals has been much debated, and opinions range between regarding 2,000, 4,000 and 10,000 as the ideal size; 2,000 is the general limit in the progressive State of Massachusetts, and this is probably a wise unit. Dr. W. A. White, who has built up a remarkable aggregation at Washington, advocates 4,000, but the late Dr. Floyd Haviland, who controlled 6,700 odd patients at Manhattan, New York, definitely stated that the large hospitals increased accidents and lowered the recovery rate. Dr. Haviland's obvious capacity left no doubt as to his ability to administer these large numbers in as satisfactory a manner as was possible. This opinion against these larger figures which are advocated by the laity and big business men, is impressive. As stated, it allows good medical and surgical facilities at a proportionately small cost, but there tends to be a lack of any personal touch with the patients, and the success of the institution depends greatly upon subordinates.

Psychopathic Hospitals.—The great development in Canada and the United States of these hospitals represents the most notable advance that has been made over English psychiatry.

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Psychopathic Hospitals.—The great development in Canada and the United States of these hospitals represents the most notable advance that has been made over English psychiatry.

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They can be divided into reception units, replacing the observation wards familiar in Englyand, and clinics selecting their own cases on the lines of the Maudsley Hospital.

Toronto, Chicago and Boston each have psychopathic hospitals which act as reception units for their respective cities, and New York has plans for a similar building to replace the present observation wards.

The famous Phipps Clinic at Baltimore is attached to the Johns Hopkins Hospital and is a voluntary clinic selecting its own patients. Similar clinics are arising at Philadelphia and New York. The first of these is in connection with the department of mental and nervous diseases of the Pennsylvania hospital, and the latter is run by the New York State mental department.

The Phipps Clinic is quite small but well-fitted, and organized for teaching. The length of residence of each case is rather less than two months, as 394 admissions are dealt with annually in 60 beds. The results of treatment which are given are obviously very conservative, as only 20 per cent, are returned as "cured," 7 per cent. as "greatly improved," and 36 per cent. "improved;" 29 per cent. are given "unimproved" (mainly certified) and 8 per cent. "not treated." The costs are about £10 weekly. The high cost of staff accounts for much of this expense, as in most U. S. A. institutions. This hospital obviously owes much to the great personality of its chief, Dr. Adolph Meyer.

The Psychiatric Institute just opened in New York, near the Presbyterian and Columbia University, is a fine building and seems likely to become a notable centre. It is close to the Neurological Unit of the Presbyterian Hospital and will be run in close association with this hospital. It is likely that it will receive voluntary patients on similar lines to the Maudsley Hos pital.

The Mental and Nervous Department of the Pennsylvania Hospital is really a wealthy foundation like Bethlem Royal Hospital, with its own separate endowments. It is now converting part of its original site into a first class clinic for voluntary patients with an ample out-patient department. The cases re-

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quiring longer treatment, and certified cases, are to be dealt with on a new estate well outside the city. The funds for this have been readily obtained by selling a portion of the valuable land of the hospital in the heart of the city. The out-patient department has been functioning for some years and appears quite successful.

Coming to the hospitals which function as reception units, the oldest and most complete is that under Dr. McFie Campbell, at Boston. There are 126 beds and 20 medical staff. It is notable that the out-patient department at this hospital deals with quite as many cases of this type as those seen in the Boston General Hospital. About 200 in-patient cases are dealt with monthly, which gives an indication of the pressure of work. Despite this, it forms an important teaching and research center.

The Chicago Psychiatric Hospital has 175 beds and deals annually with from 5,300 to 5,600 patients (more than one hundred per week). There are only two paid assistants to the superintendent, but eight unpaid psychiatrists work here in return for teaching facilities. Despite the great pressure of work, time is found for investigation and treatment. An obvious deficiency is the absence of an out-patient department.

The Toronto Psychopathic Hospital, under Professor Farrar, has 60 beds and an out-patient department. It receives cases brought in by the police, cases referred for observation by their doctor, and cases taken in from the out-patient section, and it appears to function well.

These units all seem to be developments on the right lines, and when the new 600-bed unit is built in New York, it is likely to become one of the notable centers. No one doubts the importance of clinics for voluntary patients, but the adequate dealing with those early cases which require enforced observation is also a most important question.

The Mental Deficiency Schools at Letchworth and Wrentham are built on the villa or colony principle, and both impress one as being run on sensible practical lines.

Various "Child Guidance" movements were seen. These schemes have often developed from the study of child delin-

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quency. The center at Chicago under Dr. Hermann Adler has developed into a neuropsychiatric and research center. An interesting environmental study worked out by the sociologist shows that the dense area around the business quarter has supplied the bulk of the crime, when successively occupied by the Scandinavians, Irish and Germans, later by the Poles and Italians, and lastly by Negroes. Each group as it has become more prosperous has moved out and has improved in its habits. A most comprehensive scheme of study in regard to children of all ages is being developed under Professor Bott of Toronto. The Institute of Human Relations which is being organized by Dr. Winternitz at Yale will absorb the well-known Gessell clinic and other activities.

The "Mental Hygiene" movement appears to be doing good work, both in New York and Canada, and is focusing interest in mental work and assisting to start progressive developments. The energy of Mr. Clifford Beers in New York and Dr. Hincks in Toronto has largely contributed to this.

In general I felt that real progress is being made, particularly in regard to providing clinics and reception units. The attitude of the progressive workers in the mental hospitals appears good. Every endeavor is made to link up with the general hospitals and the general trend of medicine. I was told frequently that it was recognized that the policy of isolation was a great mistake, and every endeavor was being made to change it. Considerable success seems to be attending these efforts, possibly owing to the energy of the Mental Hygiene Movement, and prejudice and lack of understanding are becoming less evident in consequence.

The "prevention" and "mental hygiene" departments of the New York and Massachusetts mental departments were most hopeful, and suggested an attempt to deal with the problems as a whole in a progressive manner.

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Noise! Noise! Noise!

Marcus Valerius Martialis, the chief epigrammatist of antiquity, explained to his friend Sparsus that the noises of Rome drove him from the city to his villa (*Martial*, book xii, lvii). Ambroise Paré, the surgeon of the Renaissance, pointed out in a significant passage that noise increases pain, fever, and other complications (Victor Robinson's *Pathfinders in Medicine*, 1929, p. 119). Evidently, all ages have suffered from the noises made by morons. Of course, our own hard-boiled era, with its ceaseless Machines has endured much. Perhaps too much. For at last there is a sensible commission in the land—the Noise Abatement Commission. Nearly all the commissions appointed by the President, Congress or other politicians, are only expensive frauds. But the Noise Abatement Commission, as the result of its first report, has already performed a useful service to the community.

A recent issue of the *New York Times* (July 7, 1930), carried this headline as front-page news: NOISE FOUND HARDER ON BRAIN THAN DRUGS. The subheadings read: BURSTING OF A PAPER BAG CAUSES MORE PRESSURE ON IT THAN MORPHINE, TESTS SHOW—EMOTIONAL THEORY UPSET—PULSE, METABOLISM AND HEARING ARE AFFECTED FIRST, ABATEMENT COMMISSION REPORTS.

The Medical Review of Reviews, which has held these ideas for years, is indeed glad to note that some of the most distinguished physicians in the city are serving on the commission. Quoting from the *New York Times:*

A summary of health hazards resulting from loud noises and an enumeration of preliminary measures directly diminishing noises in the city are contained in the first report of the Noise Abatement Commission, made public yesterday. The report is the first of three sections covering the first six months' work of the commission, and was submitted by Edward Fisher Brown, its director, to Health Commissioner Shirley W. Wynne.

Through the use of a device measuring actual increase of pressure on the brain, in experiments carried out at Bellevue

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Hospital, Dr. Foster Kennedy discovered that the bursting of a blown-up paper bag raised the pressure higher than either morphine or nitroglycerine, the most powerful agents known for raising the pressure of the brain. The paper bag explosions raised brain pressure to four times normal, with a thirty-seven second interval before return to normal pressure.

In addition to this violent increase of brain pressure, the subcommittee of physicians found that loud noises affected metabolism, produced partial or total deafness upon long exposure, prevented concentration, retarded learning in both children and adults, and interfered seriously with the normal development of infants and young children.

While certain noises have already been reduced through the work of the commission, the report makes it clear that the principal effort of the first half year has been devoted to the obtaining of scientific evidence of the precise effect of noise upon the residents and the resulting injuries to health. To this end wide scientific investigation has been carried on, and the findings, as stated in the report, indicate that noise is responsible for many ills.

"This committee," says the report, "after a study of data so far made available through research, declares that the continual pressure of strident sound to which New Yorkers are subjected tends to produce impairment of hearing, to introduce harmful strain upon the nervous system leading to neurasthenic and psychasthenic states, to cause loss of efficiency of workers and thinkers, and finally to interfere so gravely with sound, refreshing sleep that rest is difficult and in some cases impossible."

The mechanics of noise-induced deafness was explained as resulting from overstrain on the muscles of adaptation or accommodation in the ear. These muscles are equipped to adapt the organ of hearing to any level of noise, and function smoothly if the levels are reasonably sustained. Long experience of sudden loud noises, however, requiring abrupt and very frequent readaptation, wears out these muscles so that they no longer respond.

Effects of noise upon concentration and efficiency, which were carried out by Dr. J. B. Morgan of Northwestern Uni-

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versity with sixty subjects furnishing the material for data, indicated that greater efforts and poorer results were both observable when noise was introduced as an element in the environment of the subject.

"The effects of noise have been described by research workers as 'emotional,'" the report continued. "Long before the emotions are actively disturbed there are undoubtedly disturbances expressed in heightened pulse rates, increased blood pressure, irregularities in heart rhythm and, most important of all, in the increase of pressure on the brain. Emotion is only the end product of the process; the undoubted effect of constant noise is a disturbance of the blood vessel apparatus and an increase in the degenerative processes of the heart and arteries."

As to the progress already made in actual abatement of noise, the report lists the co-operation of steamship and tugboat concerns in curtailing whistling and other harbor noises, the co-operation of concerns operating fleets of trucks in eliminating opening of cut-outs and non-essential blowing of horns, the experimental installation of muffled turnstiles by the I. R. T. Company in its Grand Central Station, the obtaining of ordinances curbing the use of radio loudspeakers, and the interesting of engineers in the production of less noisy machinery and vehicles.

The members of the commission are: L. H. Brown, chairman; Dr. Samuel A. Brown, C. C. Burlingham, Prof. Albin H. Beyer, Dr. Alexis Carrel, Dr. Arthur B. Duel, Dr. Harvey Fletcher, Dr. Foster Kennedy, Lawson Purdy, Dr. Samuel J. Kopetzky, Dr. Bernard Sachs, Alfred H. Swayne, Dr. Frederick Tilney, Commissioner E. P. Mulrooney, Dr. Shirley W. Wynne, Edward F. Brown, E. B. Dennis.

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BOOKS

177. ARTHUR C. JACOBSON: *Genius—Some Revaluations. An Adelphi Publication. Greenberg, New York.*

In his inscription of this book, the author refers to someone as being "a liaison officer between a rationalized literary criticism and present-day medicine"; he might well have used this as a description of what he has himself essayed to be. Doctor Jacobson has written so interestingly of such a host of personalities that it is hard to know just where to begin, in discussing his effort to trace genius to its sources. While it is rather astounding to have these sources ascribed so frequently to the toxins of alcohol and tuberculosis, as the agencies that serve to release the "secondary personalities" (a term by which we assume he means the unconscious), it is at least an interesting thought. Certainly he makes no bones about calling names out in court; and the hosts of names that he cites give at least a similitude of authority to the conclusions that he draws.

In his chapter "Alcohol and Art" he calls a glorious roster of more or less complete inebriates; in "Genius and Disaster" the various drugs in their relation to genius are hinted at; while "Tuberculosis and the Creative Mind" needs no explanation as to what it contains, with "Records at Large" carrying out the thesis contained therein. In "What Genius Is Not" he disposes pretty effectually of the idea that insanity disposes toward the enfranchisement of genius.

The amount of data that Doctor Jacobson has amassed in support of his theses is amazing. He seems to call the roll of the ages; and assigns their places in one rank or the other to nearly all of the familiar figures. Those of us who are not geniuses seem at least safe from his collecting mania; none others need hope to escape him.

FRANK HOWARD RICHARDSON, M.D.

[For a previous review of this book (by CHRISTIANE THEWLIS) see number 16, March 1927.]

178. KATHERINE M. H. BLACKFORD *and* ARTHUR NEWCOMB: *The Right Job—How to Choose It and Keep It. 2 Vols. The Review of Reviews Corporation, New York.*

The doctor who essays to act as a real family counsellor is frequently consulted about the type of occupation that the children in his families

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ought to select. The choice of the right job is to be more widely recognized at last for the important matter that sympathetic friends of young people have always known it to be; but that parents have been slow to evaluate as it deserves.

The present volumes give countless rules for the choice of an occupation, based upon varying types of head, hand, body; upon differing textures of skin, muscle and bone; and upon contrasting coloring, pigmentation and complexion. While the present reviewer does not consider himself qualified to pass upon the multitude of rules for judging character and aptitude contained in these interesting books, he did find much of undoubted value in the advice regarding the choice of kinds of work for varying types of individual. It is easy to turn discussion off with a shrug when the correspondence between physical characteristics and emotional traits is brought up; but undoubtedly we all of us have a certain dependence upon our interpretation of the physical as affecting the emotional.

The present authors have made a sincere effort to translate into workable terms their own beliefs along this line. Whether or not the average physician agrees with them, he cannot fail to find much of interest in the text, that should serve him in good stead when next he is called upon to counsel with parents over that ticklish matter, the choice of careers for their children. FRANK HOWARD RICHARDSON, M.D.

[We don't believe a word of it.—ED.]

179. AN OUTLINE OF AESTHETICS: *Edited with Introductory Notes by* PHILIP N. YOUTZ. (*The World, the Arts and the Artist, by* IRWIN EDMAN; *The Judgment of Literature, by* HENRY WELLS; *The Mirror of the Passing World, by* M. CECIL ALLEN; *With the Eyes of the Past, by* HENRY LADD; *Scientific Method in Aesthetics, by* THOMAS MUNRO). *W. W. Norton & Co., New York.* 1928.

This little collection is a multum in parvo. Believe it or not, it takes hours on hours to read, and when through, we are inclined to doubt that Political Economy is the only "dreary science" as claimed by Meredith—or was it Ring Lardner? Aesthetics is all of that, and then some—nebulous, inconclusive, and not at all sure of itself. From the Editor's short note we gather that those who nowadays write on Aesthetics "have ceased to quote Aristotle's Poetics, Demetrius on Style, and Longinus on the Sublime." Be that as it may, and while we are quite ready to admit that they have little style, less poetry, and nothing sublime, they still remain Aristotelean, Demetrian, and Longinian. No matter how thin you cut it, aesthetic discussion still remains—farcimentum Bolognense. I think of the coat-of-arms (American style) of the University of Pennsylvania. A pyramid of books, variously entitled, according to the "disciplines," Mathematics, History, Geography, and so on, and "brochant sur le tout," the motto "Sine Moribus Vanae." If we substitute "Biologia" in this sentiment, it will apply perfectly, I think, to all forms of philosophic discussion. There were brave men before Agamemnon, and keen observers of life before Darwin and

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Freud, yet to my way of thinking, those who attempted to interpret the facts of the macrocosm or of the microcosm without knowledge of evolution or of the sub-conscious and its modes of action, were wandering, if not in the dark, at least in pretty deep twilight. After reading such works one thinks involuntarily of Goethe's "Und gerade wo Gedanken fehlen, da stellt ein Wort zur rechten Zeit sich ein." And in conclusion, and not that it matters, at all, I think that molten lead or boiling oil is none too good for an Editor who refers to "this data." [sic]. PERCY FRIDENBERG, M.D.

180. ESTELLE M. REILLY: *How to Cook for Children. G. P. Putnam's Sons, New York*, 1927.

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Particularly well dealt with is the subject of teaching of sex to children, the age at which to teach sex, the method of presentation, the family influences, and the sum total of sex knowledge that should be transmitted to the child by the parent. The book may be highly recommended to lay people whose ideas of sex and masturbation are colored and beclouded by the popular fallacies which are almost universal. MORRIS H. KAHN, M.D.

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of the development of the primary lesion. The pre-positive Wassermann test phase was clearly distinguished from the later phase in which the organisms became fixed in the tissues. The necessity of recognizing the infection by means of dark field examinations in this pre-positive stage was emphasized. The fact was established that treatment instituted at this time resulted in a very high percentage of clinical cures. If this golden opportunity be permitted to pass the percentage of cures is markedly reduced.

It is at the end of this phase, i.e., when the organs become fixed to the tissues that the future of the patient is largely decided. The cardiovascular system, central nervous system, etc., are involved during this phase. This is one of the most important factors in deciding the ultimate outcome of the disease in the patient. He took up also the variations in the immunity of the different tissues and systems. He discussed the different types of serological reactions, both in the blood and spinal fluid.

He presents clearly the modern idea of the interpretation of these findings. The necessity of early examination of the spinal fluid was emphasized. He followed very carefully the course of the blood serological examinations during the different stages of the infection and took up especially the negative blood Wassermann reaction and spinal fluid serological findings in tabes. The author believed that all tabes patients have a positive Wassermann reaction of the spinal fluid at some time during the disease. The positive reactions in the spinal fluid were considered as due mostly to the meningeal reactions. As this reaction subsides and the parenchymatous process becomes more marked the Wassermann reaction progresses towards negativity.

Treatment was considered both from the point of view of non-specific and specific measures. The non-specific variations in the individual patient were considered as explanatory of many of the variations in the result of specific treatment. The book closed with a chapter in which the modern laboratory tests were briefly discussed in relation to their technique.

183. A. PINEY: *Recent Advances in Haematology. P. Blakiston's Sons, Philadelphia*, 1928.

Blakiston's "Recent Advances" series keeps its standard well up in this contribution to the important branch of medical science that this little book treats of. It is surprising what a wide scope has been covered in what looks like a small handbook. There has been no attempt to make a trite presentation of the subject for the hasty reader. Instead the subject is presented in a scholarly way; and the special student of the subject will be surprised as well as pleased to find that a work worthy of his careful attention and serious study has been put into handy form and within reasonably limited space.

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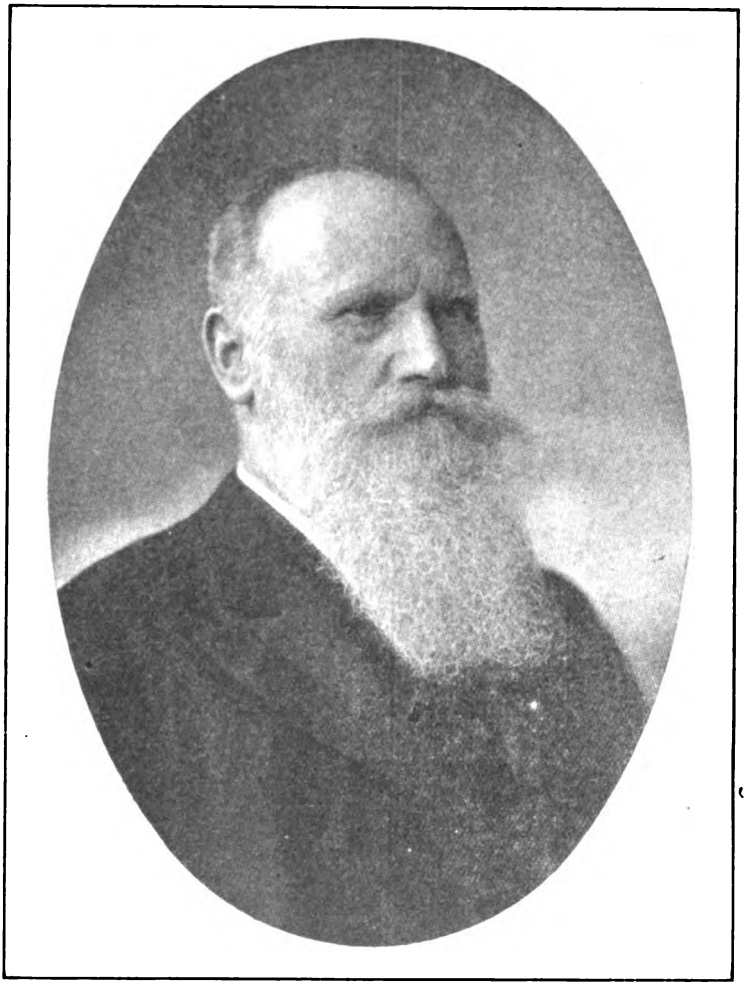

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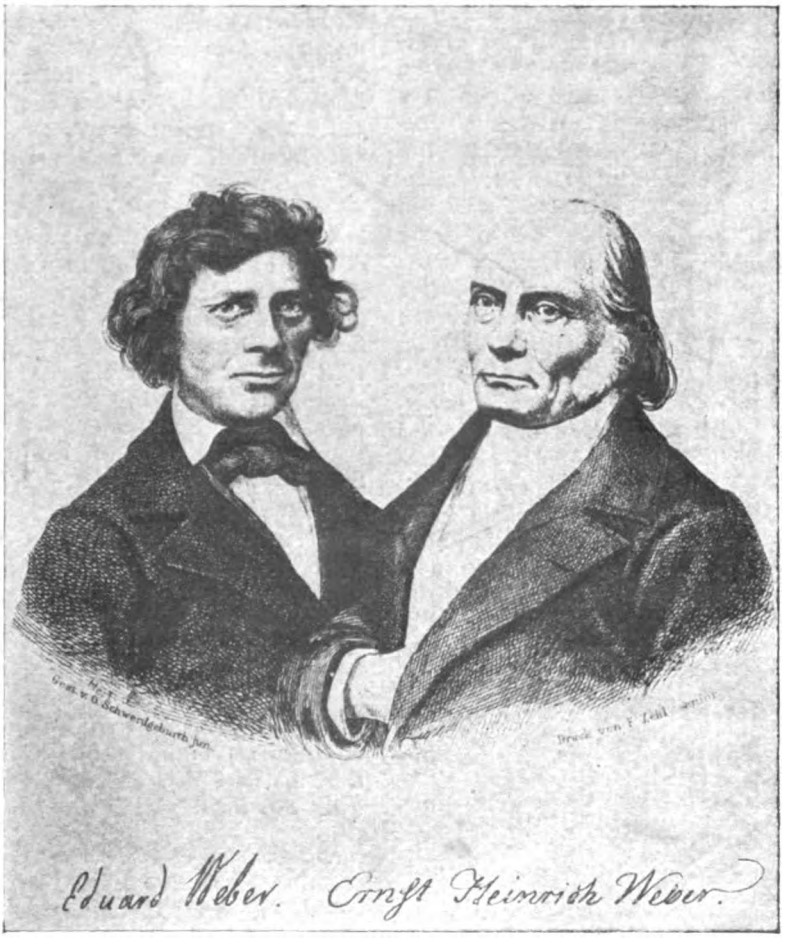
MEDICAL REVIEW OF REVIEWS

418th Issue September 1930



Eduard Weber [1806-1871] and Ernst Heinrich Weber [1795-1878]

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MEDICAL REVIEW of REVIEWS

Foundation of Journal: The Medical Review of Reviews was founded in 1895 by Daniel Lewis, M.D., M.A., Ph.D., LL.D., Professor of Surgery, New York Postgraduate Medical School and Hospital; Commissioner of Health, State of New York (1892-1904); President, New York County Medical Society (1884-86) and Medical Society of the State of New York (1889); Vice-President, New York Academy of Medicine (1896). The Medical Review of Reviews was the first medical journal in America to devote itself to abstracts and to publish a monthly Index Medicus. These features became unnecessary and were eliminated when numerous periodicals added abstract departments and the American Medical Association began the publication of the comprehensive Quarterly Cumulative Index Medicus. The Medical Review of Reviews is now devoted to original contributions on general medicine and public health.

Amalgamation of Journals: During its career, the Medical Review of Reviews has absorbed these five journals: Southern Medicine, Therapeutic Medicine, Journal of Pediatrics (founded 1895 by Dr. Dillon Brown), Buffalo Medical Journal (founded 1845 by Dr. Austin Flint), and Archives of Therapeutics.

Medical Sociology: The Medical Review of Reviews, one of the first journals to recognize the relationship of medicine to social problems, produced Eugene Brieux's Damaged Goods, Frank Wedekind's The Awakening of Spring, Gerhart Hauptmann's The Weavers, and various other social dramas and films. This phase of the journal's activity was under the direction of its publisher and managing editor, Frederic Hugo Robinson (1890-1923).

Contributors: The many distinguished physicians and surgeons of the past who have contributed to the Medical Review of Reviews include: Abraham Jacobi (1830-1919), Daniel Bennett St. John Roosa (1838-1908), George Ryerson Fowler (1848-1906), Roswell Park (1852-1914), Byron Robinson (1854-1910), John Veitch Shoemaker (1858-1910), Heinrich Stern (1868-1918), and Sir James Mackenzie (1853-1925).

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Manuscripts: Manuscripts should be typewritten, double-spaced, with ample margin, mailed flat; the ORIGINAL is to be sent and the author should preserve the CARBON. Authors should read their manuscripts carefully before submitting them for publication. Unsolicited manuscripts should invariably be accompanied by return postage.

Publications: Notable contributions to these pages include, among many others, Sir James Mackenzie's Cardiac Signs; J. F. McClendon's Hydrogen Ion Concentration in Physiology and Medicine; Victor Robinson's Landmarks in Pharmacology, Autobiography of the Tubercle Bacillus, Medicine under King Mike, and American Medical Biography; various essays by Havelock Ellis; Mary Ware Dennett's Sex Side of Life; and James P. Warbasse's protest against the military conscription of youth. I. L. Nascher, the founder of geriatrics in America, established in this magazine the first department devoted to diseases of the aged. Among the books bearing the imprint of Medical Review of Reviews are the first editions of Victor Robinson's Pathfinders in Medicine, and Essay on Hasheesh; and Christabel Pankhurst's Plain Facts about a Great Evil. The journal has published various symposia, and also special numbers, including the Psychopathology Number which was prefaced by Sigmund Freud.

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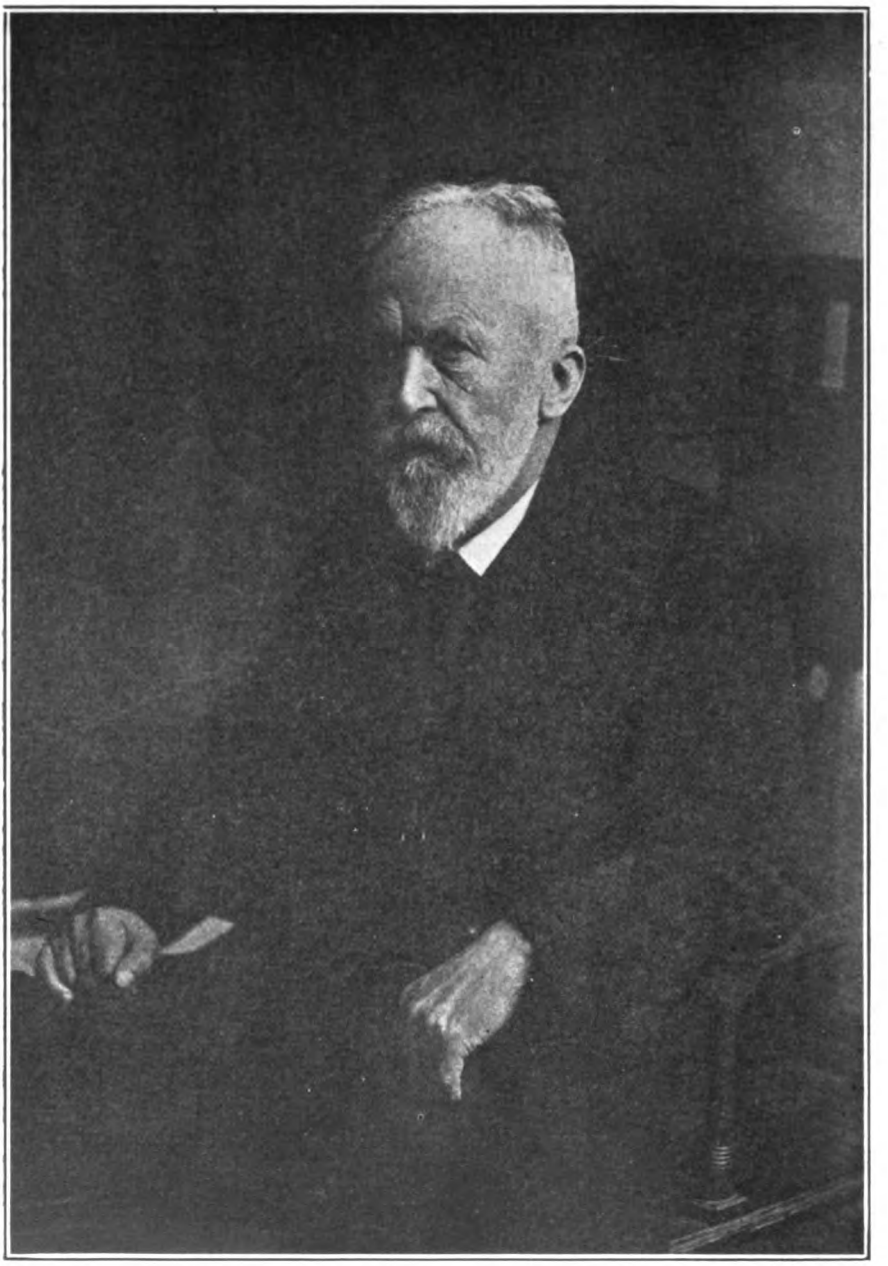

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A Medical Woman Looks at Leprosy

MARY MCKIBBIN-HARPER, M.D.

It may appear incredible that one making a tour of the great, wide, beautiful, wonderful world would pause to look at leprosy. To an acquisitive mind, however, the unknown is always a challenge and my meager knowledge of the disease was only that gathered from Osler's text and the pathology courses of Dr. Warthin which of course included the microscopic pathology of the infectious granulomata.

Many years later, leprosy was actually seen in Cuba and subsequently in Egypt but in the Orient one need not stop to see leprosy—it is everywhere present.

A lecture on leprosy by Dr. Ernest Muir of the School of Tropical Medicine in Calcutta; conversations on a Bengal Bay steamer with Dr. Dutta, a native leprologist associated with the eminent authority Dr. Fletcher, in Burmah, and finally Dr. Fowler's illuminating treatise placed in my hands in Shanghai, intrigued me into visiting leprosaria.

Upon return to the United States I began, like Captain Cuttle, to "search the records" for literature on leprosy and read everything available including pounds of government reports which I had through courtesy of Dr. George McCoy of the U. S. Public Health Service.

Though I am neither, leprologist nor dermatologist and have nothing *new* to contribute I have taken an especial interest

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in the fallacy of attaching a stigma to leprosy and the cruelty of leprophobia. Also, I cherish a hope that many busy practitioners who have not had leisure to visit leprosaria in different countries may share that experience with me.

A survey of the literature of leprosy reveals the fact that the disease has been baffling at every turn of the way. Though it is nearly fifty years since the discovery of the germ it is only rather recently that a proper medium for its culture has been found. Formerly it had to be grown with symbiants, the amoeba and the vibrio of cholera, after the method of Clegg.

In the study of the mode of infection, patient drudgery over bottles of leprous-fed flies and mosquitoes and the tireless study of rat leprosy by such authorities as Stefanski, Rabinowich, Kitasato and Drs. Donald Curry and Harry Holman have had their only result in certain exclusions.

Through centuries the search for a remedy has been world wide. The history of the remedy in common use begins in old Aruvedic medicine in India where an ointment of the hydnocarpins (the genus to which chaulmoogra belongs) was used for leprosy. The use of the oil in teaspoon doses became universal at a much later date, but it was so irritating and nauseating that tolerance did not last long enough to get appreciable results. Tortulis of Egypt first used it hypodermically, but results were unsatisfactory.

Sir Leonard Rogers, using the chemistry of Sudhamoy Ghosh an Indian, sought a non-irritating active principle. Contributions to this study were made by Heiser and Brill from the Philippines and others and Powers took up the work in the Wellcome Research Laboratory in London.

This world-wide chemical research was ended by the completion of the intricate chemistry of the mixed ethyl esters of the fatty acids of chaulmoogra oil by Drs. Dean and Wrenshall of the U. S. Health Service in the University of Hawaii.

One marvels that all along the line investigators have displayed, even in the smallest details, the precision of a Koch, the imagination of a Pasteur and the zeal and indefatigable persistence of Americans. Their vicissitudes (and this is true in the study of many diseases) form a considerable bulk of the literature on the subject.

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Leprosy, one of the oldest known diseases, has held the curious and morbid interest of the world through the centuries partly because of its incurability, deformities, loathsomeness and consequent separation from friends and ostracism from society, but particularly because Biblical or Jewish history has made the word leper a synonym for all uncleanness, physical and spiritual.

There is real tragedy in the old time picture of half-starved, scantily-clothed lepers, long sequestered in the fastnesses of hills and mountains, creeping stealthily forth into the light of day in quest of food wearing a warning bell or crying "Unclean, Unclean."

In modern times the heart-gripping experience of lepers have served as a basis for scenes in legitimate drama and film. The leper scene in Ben Hur was hardly less effective than that of the chariot race. The Ten Commandments dramatically presented a stowaway, a beautiful girl, emerging from a bale of merchandise in the hold of a vessel who subsequently scattered disease and misery in her wake. Thousands viewed this film but a very small proportion realized that the disease was not leprosy but syphilis symbolized as moral leprosy, and that the results of breaking the seventh commandment were presented. But the idea that leprosy is an acutely contagious disease was broadcast through the world!

A rather recent best seller introduces the story by the incidence of leprosy in a south sea trader, who bringing his vessel into a Pacific port learns for the first time in quarantine the true nature of his disease, crowns himself with a chaplet of flowers and leaps into the sea.

In Cuba I was pressed to visit the thrills offered to tourists —the cock-fight, the bone pile in Colon cemetery and last but not least the lazaretto or leper hospital.

Newspapers recognize the universal appeal in scoops about sporadic cases of leprosy. "Cured Mountaineer Once Fought Cure with a Shotgun," "Leper Settlement Viewed from Planes," "Brazilian City Invaded by Lepers Who Are Forced Back into the Colony and Police," are some recent headlines.

Extravagant claims and marvellous cures have been ex-

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ploited while the reports of skilled investigation have been so garbled that the truth is like a grain of wheat in an infinite deal of chaff. In consequent misconceptions a morbid curiosity has been added to an irrational lepraphobia.

In the progressive march of preventive medicine, mysteries must be uncloaked, superstitions and traditions trampled down and facts faced practically not sentimentally and fearfully by an informed public, marking time with the medical profession. The public ought to know just what leprosy is, where it is prevalent, what are the dangers of contracting it and whether it may be cured. The laity ought to know also that physically leprosy is not more unclean and certainly not more devastating or hopeless than some other diseases and that in the light of modern knowledge and belief that the stigma of spiritual uncleanness placed upon leprosy is most unreasonable. Such instruction should come from the medical profession either directly or indirectly.

It is not supererogation in a disease so little considered by the average practitioner, to suggest how these questions may be answered.

Leprosy is a new growth caused by the irritation of the Bacillus Leprae, discovered by Armauer Hausen of Norway nearly fifty years ago. The disease varied in manifestation and intensity may begin with a puffiness over the cheek bones and a macular rash from which nodules develop. These nodules (as all new growths poorly supplied with blood) break down easily and becoming further infected by other germs form ulcers which often invade the muscles so deeply that the resulting cicatrization produces that distorted or fierce expression known as "Leonine Face." Mutilations may be devastating, even to the loss of fingers, toes, limbs, etc.

There is a nervous form, however, in which the macules lose pigment, giving the "white spots" so often mentioned. But the two forms quite commonly appear together and few cases present all of the symptoms at the same time. Atypical cases may not be recognized at a glance. The director of a Class A Laboratory confided to me, "Yes, the tramp came but the joke is on us. We did not know that he had leprosy and did not examine him."

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As to the prevalence of leprosy it almost disappeared in the middle ages but has again become very prevalent. It occurs sporadically in the United States, perhaps sometimes developing after quarantine examination. To the free clinics connected with medical schools in our large cities there come scarcely enough cases to furnish examples to lecturers. A nationally known dermatologist opens such a clinic saying, "Here is one of the infectious granulomata with a small acid-fast bacillus—not tuberculosis" lest a whisper reach the press and the necessary teaching example be frightened away.

There are foci in the southern states, in the northwestern states brought from Scandinavia, in California brought from China, and the U. S. Naval Base Hospital No. 66 and the National Leprosarium at Carville, La., care for six or seven hundred patients. There are about twelve hundred lepers in the United States. But beneficent Uncle Sam has embraced hot beds of leprosy in Hawaii and in the Philippines. As the world grows smaller leprosy comes nearer.

There is little leprosy now in Europe except around the Mediterranean. It is very prevalent in Africa, through the Orient, in the Pacific Isles and in South and Central America and Mexico. There is a popular idea that leprosy is a tropical disease. This is not a fact but all diseases are aggravated in tropical climes where nutrition is below par and sanitation bad.

What are the dangers of contracting leprosy at home or abroad is a question that cannot be accurately answered until the mode of infection, which is being earnestly sought by workers all over the world, is definitely found.

Reports of investigators would fill volumes and a fund of knowledge has been accumulated. It has been shown that the disease is not hereditary. Children born of leprous parents removed at birth never have the disease. There is no evidence that it has ever been transmitted by vaccination. All agree that mosquitoes and other bloodsucking insects are not carriers. There is no evidence that flies are carriers (though they may be regarded with suspicion) and studies in rat leprosy furnish no evidence that rats are carriers to the human family. Jonathan Hutchinson's idea that a fish diet increases suscepti-

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bility has been exploded. It is the world wide concensus of opinion that infection comes by long contact as in house infection through bedding and clothing. We may then say that leprosy, though infectious, is not highly contagious and that facts do not justify the panicky fear of casually meeting lepers. The dangers of contracting leprosy at home under the existing precautions of the government are practically negligible and almost so in traveling abroad with reasonable care in selecting a domicile. I am often asked, "Are you not afraid to visit leper hospitals?" Emphatically, "No."

Can leprosy be cured? In a leisurely tour around the world in 1925 and 1926, acting as a medical correspondent (not making a leprosy survey) I visited leper hospitals and colonies and found leprologists everywhere using the mixed ethyl esters of the fatty acids of chaulmoogra oil hypodermatically and that many lepers had been returned to their homes clinically and bacteriologically clean and that the symptoms of many others had been greatly ameliorated by the same treatment. Are they cured? It is the habit of other infectious granulomata to "play possum." Tuberculosis often lies dormant for a time and then flares up. Neo-Salvarsan causes the symptoms of syphilis to disappear but there are recurrences and the ravages of the disease are found postmortem. We can say, however, that great numbers of lepers have been returned to their homes apparently cured—clinically and bacteriological clean and that these are most certainly arrested and non-contagious cases.

The press has made loud claims for a new remedy from Germany and Dorpat University, Esthonia, etc. This remedy, carbonic snow, is far from new, having been first used in skin diseases by Dr. William Pusey of Chicago in 1906, and by Dr. James Wayson of the U. S. Health Service in Hawaii for leprosy in 1911. Subsequently Dr. George McCoy of the same service reported on thirty-one cases unfavorably. Many other extravagant claims have been equally unreliable.

The Chaulmoogra treatment was used by all leprologists whom I met and in all leprosaria visited.

There are perhaps more than 250,000 lepers in India, having a population of 315,000,000. Indians regard disease as coming from the wrath of heaven and propitiate the gods instead of

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seeking cure. This fact with lack of sanitation, extreme poverty and heat, lowered vitality from need of proper food and intercurrent tropical diseases complicates the care of lepers. Overcrowding makes detection difficult, isolation is hindered by the strength of the family ties, but the lack of money to push the treatment is the paramount reason that comparatively few are under observation and treatment.

Among the thousands of pilgrims coming to sacred cities, especially Benares, are many aged and diseased who travel fourth class on trains so crowded that turbans, arms and legs hang from windows, in bullock carts, in rude ekkas, walk or are carried to bathe in the sacred waters or rivet the last earth-look on the sacred Ganges. I saw lepers among those hurrying down the steep steps of the bathing ghats with their little brass water pots, bathing and receiving the red mark of Brahma upon their foreheads, and occasionally I saw lepers lying on the steps among beggars, fakirs, holy men and the lame, and blind. I saw them often among the human wreckage hovering around the temples. But the great School of Tropical Medicine is in Calcutta and the impetus given the work on leprosy by Sir Leonard Rogers and now carried on by Dr. Ernest Muir is bearing fruit in the modern treatment in Leprosaria.

The leprosarium at Purulia in Bihal about two hundred miles northwest of Calcutta opened by the Germans many years ago was taken over by the C. M. S. (Church Missionary Society) at the time of the world war. At the time of my visit there were about eight hundred lepers here with forty-eight healthy girls and about thirty or forty healthy boys, children of leprous parents in a home a mile distant. There were many advanced cases at Purulia, some of them being burnt-out, many of them florid cases. A woman was noted who ate her curry with a spoon—a *faux pas* in India, where etiquette requires that eating be done with the fingers. One boy, who had been removed to the dead house as is the custom when death is imminent, was unexpectedly recovering under the chaulmoogra treatment.

The patients lived in three-room bungalows, four in each room and each had a daily ration of food and a few pice for extras which were spent at the leper store, dropping the money

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into a bowl of antiseptic. The money thus collected was distributed again.

The men and women were each building a hospital and there was rivalry between them, the men being slightly in the lead. The women carried mortar and crushed stone for lime quite as well as the men.

The patients here had better homes than the mud huts, scarcely distinguishable from camel stables, from which most of them came; their food was better and more plentiful than in their homes; they had occupation in the open air; intercurrent diseases were treated and reports of the Chaulmoogra treatment encouraging. They seemed contented, smiling in that sad and wistful way of India.

The largest leper colony in the world on Culion Island, in the Philippines, shelters six thousand lepers, one thousand having recently been returned to their homes clinically and bacteriologically clean. Our present Eastern Health Commissioner, Dr. Victor Heiser, did an early and monumental work in the Philippines and Governor Wood has done for education and sanitation in the Philippines just what he did so well in Cuba. What he has done in these respects alone for this mixed population—Malay natives, and Spanish with quite a Chinese admixture is sufficient reply to their complaint that he was a dictator.

The Philippine Health Department appropriates $600,000 a year for the leper colony and cannot do more. There were at least six thousand lepers untreated and General Wood recommended raising $2,000,000 by private subscription—a gift—that the fund might be administered by native workers, for he felt that an appropriation by Congress with appointment of a leprosy commission would be inhibitory among the fearful and suspicious Filipinos.

As we all know, General Wood coming to the United States to raise that fund to complete this work, so dear to his heart, suddenly passed away. Mrs. Dorothy Wade, wife of the Chief Pathologist at Culion, Dr. H. Windsor Wade, who had come with General Wood, remained to complete that fund as the General Leonard Wood Memorial. Many of the thrillers published by different newspapers were a far cry from Mrs. Wade's sane but touching appeals.

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There is an investigating station at San Lazaro, near Manila, but Culion Island is two hundred miles distant. I did not visit this colony but include mention of its activities not only because it is the largest and perhaps most interesting leprosarium in the world, but because it is of especial interest to Americans who have contributed to it so generously.

At the time of my visit to China conditions were very unstable, indeed, but I traveled considerably, returning frequently to Shanghai to feel the protection of the big grey boats of U. S. A. in the harbor.

The rickshaw coolies did not cry "Kill the foreigner," more frequently in Hongchow than elsewhere so I chartered a coolie with his rickshaw one lovely misty morning and crossing by the long causeway, the beautiful lake pictured on the willow plate, rode on up the high hill past the old moss-grown pagoda through a landscape artistically dotted with orange-turbaned pilgrims carrying little orange bundles (for it was the season of pilgrimages, quite as recreational as religious, to temples and pagodas) to a leper hospital embowered in roses and wisteria and such wisteria!

Dr. Wang, the native director of this hospital, known as Dr. Walter Main's Hospital for Lepers, greeted me with fine Chinese hospitality and told me enthusiastically of the results of treatment. Dr. Haddow, a medical woman from New Zealand, who had charge of the medication was past mistress of hypodermic technique.

The patients and hospital were immaculately clean and there was system to the Nth power. I have never seen any place such a smiling happy group of people. Even a victim of leprosy for thirty-five years, such a remnant of humanity that she seemed almost a disembodied spirit, unable to move on her bed, smiled with the remnants of her features.

I noted that the cases so terribly mutilated were those old cases neglected in treatment. Recent cases have all been ameliorated by treatment.

Dr. Wang gave me pictures of the hospital and patients, loaded my rickshaw with flowers, and accompanied me to the foot of the hill. I came away never having thought of statistics. The story of the work in this hospital could never be statistical

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of the development of the primary lesion. The pre-positive Wassermann test phase was clearly distinguished from the later phase in which the organisms became fixed in the tissues. The necessity of recognizing the infection by means of dark field examinations in this pre-positive stage was emphasized. The fact was established that treatment instituted at this time resulted in a very high percentage of clinical cures. If this golden opportunity be permitted to pass the percentage of cures is markedly reduced.

It is at the end of this phase, i.e., when the organs become fixed to the tissues that the future of the patient is largely decided. The cardiovascular system, central nervous system, etc., are involved during this phase. This is one of the most important factors in deciding the ultimate outcome of the disease in the patient. He took up also the variations in the immunity of the different tissues and systems. He discussed the different types of serological reactions, both in the blood and spinal fluid.

He presents clearly the modern idea of the interpretation of these findings. The necessity of early examination of the spinal fluid was emphasized. He followed very carefully the course of the blood serological examinations during the different stages of the infection and took up especially the negative blood Wassermann reaction and spinal fluid serological findings in tabes. The author believed that all tabes patients have a positive Wassermann reaction of the spinal fluid at some time during the disease. The positive reactions in the spinal fluid were considered as due mostly to the meningeal reactions. As this reaction subsides and the parenchymatous process becomes more marked the Wassermann reaction progresses towards negativity.

Treatment was considered both from the point of view of non-specific and specific measures. The non-specific variations in the individual patient were considered as explanatory of many of the variations in the result of specific treatment. The book closed with a chapter in which the modern laboratory tests were briefly discussed in relation to their technique.

183. A. PINEY: *Recent Advances in Haematology. P. Blakiston's Sons, Philadelphia*, 1928.

Blakiston's "Recent Advances" series keeps its standard well up in this contribution to the important branch of medical science that this little book treats of. It is surprising what a wide scope has been covered in what looks like a small handbook. There has been no attempt to make a trite presentation of the subject for the hasty reader. Instead the subject is presented in a scholarly way; and the special student of the subject will be surprised as well as pleased to find that a work worthy of his careful attention and serious study has been put into handy form and within reasonably limited space.

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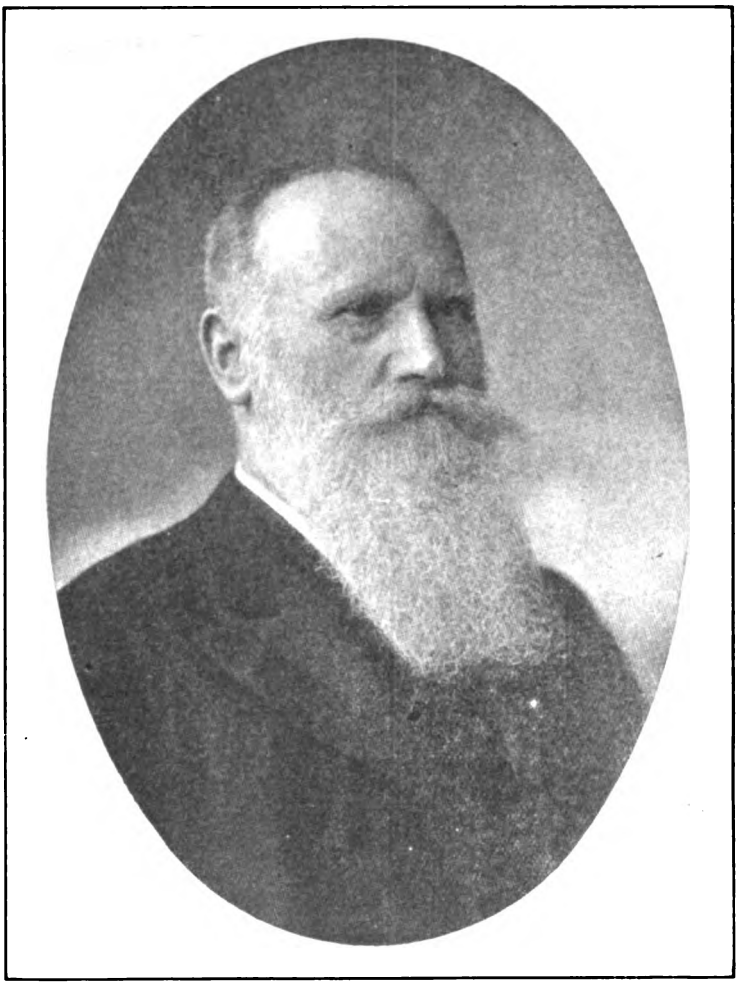

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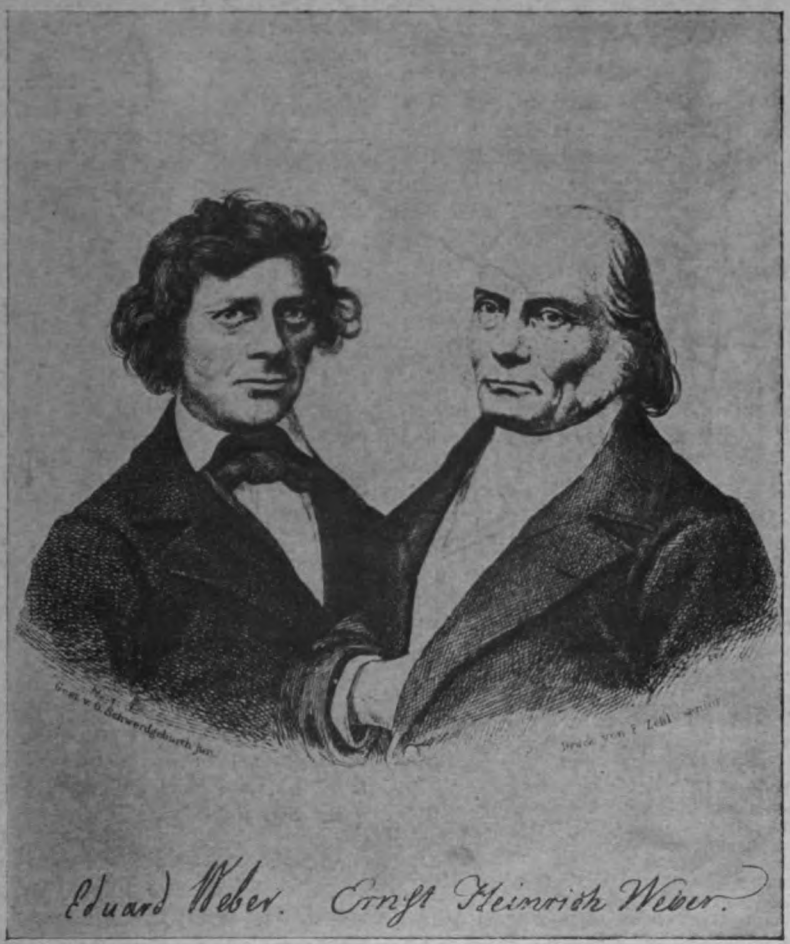
418th Issue September 1930



Eduard Weber [1806-1871] and Ernst Heinrich Weber [1795-1878]

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MEDICAL REVIEW of REVIEWS

Foundation of Journal: The Medical Review of Reviews was founded in 1895 by Daniel Lewis, M.D., M.A., Ph.D., LL.D., Professor of Surgery, New York Postgraduate Medical School and Hospital; Commissioner of Health, State of New York (1892-1904); President, New York County Medical Society (1884-86) and Medical Society of the State of New York (1889); Vice-President, New York Academy of Medicine (1896). The Medical Review of Reviews was the first medical journal in America to devote itself to abstracts and to publish a monthly Index Medicus. These features became unnecessary and were eliminated when numerous periodicals added abstract departments and the American Medical Association began the publication of the comprehensive Quarterly Cumulative Index Medicus. The Medical Review of Reviews is now devoted to original contributions on general medicine and public health.

Amalgamation of Journals: During its career, the Medical Review of Reviews has absorbed these five journals: Southern Medicine, Therapeutic Medicine, Journal of Pediatrics (founded 1895 by Dr. Dillon Brown), Buffalo Medical Journal (founded 1845 by Dr. Austin Flint), and Archives of Therapeutics.

Medical Sociology: The Medical Review of Reviews, one of the first journals to recognize the relationship of medicine to social problems, produced Eugene Brieux's Damaged Goods, Frank Wedekind's The Awakening of Spring, Gerhart Hauptmann's The Weavers, and various other social dramas and films. This phase of the journal's activity was under the direction of its publisher and managing editor, Frederic Hugo Robinson (1890-1923).

Contributors: The many distinguished physicians and surgeons of the past who have contributed to the Medical Review of Reviews include: Abraham Jacobi (1830-1919), Daniel Bennett St. John Roosa (1838-1908), George Ryerson Fowler (1848-1906), Roswell Park (1852-1914), Byron Robinson (1854-1910), John Veitch Shoemaker (1858-1910), Heinrich Stern (1868-1918), and Sir James Mackenzie (1853-1925).

Exclusive Publication: Manuscripts are considered for publication upon condition that they are contributed to this journal exclusively.

Manuscripts: Manuscripts should be typewritten, double-spaced, with ample margin, mailed flat; the ORIGINAL is to be sent and the author should preserve the CARBON. Authors should read their manuscripts carefully before submitting them for publication. Unsolicited manuscripts should invariably be accompanied by return postage.

Publications: Notable contributions to these pages include, among many others, Sir James Mackenzie's Cardiac Signs; J. F. McClendon's Hydrogen Ion Concentration in Physiology and Medicine; Victor Robinson's Landmarks in Pharmacology, Autobiography of the Tubercle Bacillus, Medicine under King Mike, and American Medical Biography; various essays by Havelock Ellis; Mary Ware Dennett's Sex Side of Life; and James P. Warbasse's protest against the military conscription of youth. I. L. Nascher, the founder of geriatrics in America, established in this magazine the first department devoted to diseases of the aged. Among the books bearing the imprint of Medical Review of Reviews are the first editions of Victor Robinson's Pathfinders in Medicine, and Essay on Hasheesh; and Christabel Pankhurst's Plain Facts about a Great Evil. The journal has published various symposia, and also special numbers, including the Psychopathology Number which was prefaced by Sigmund Freud.

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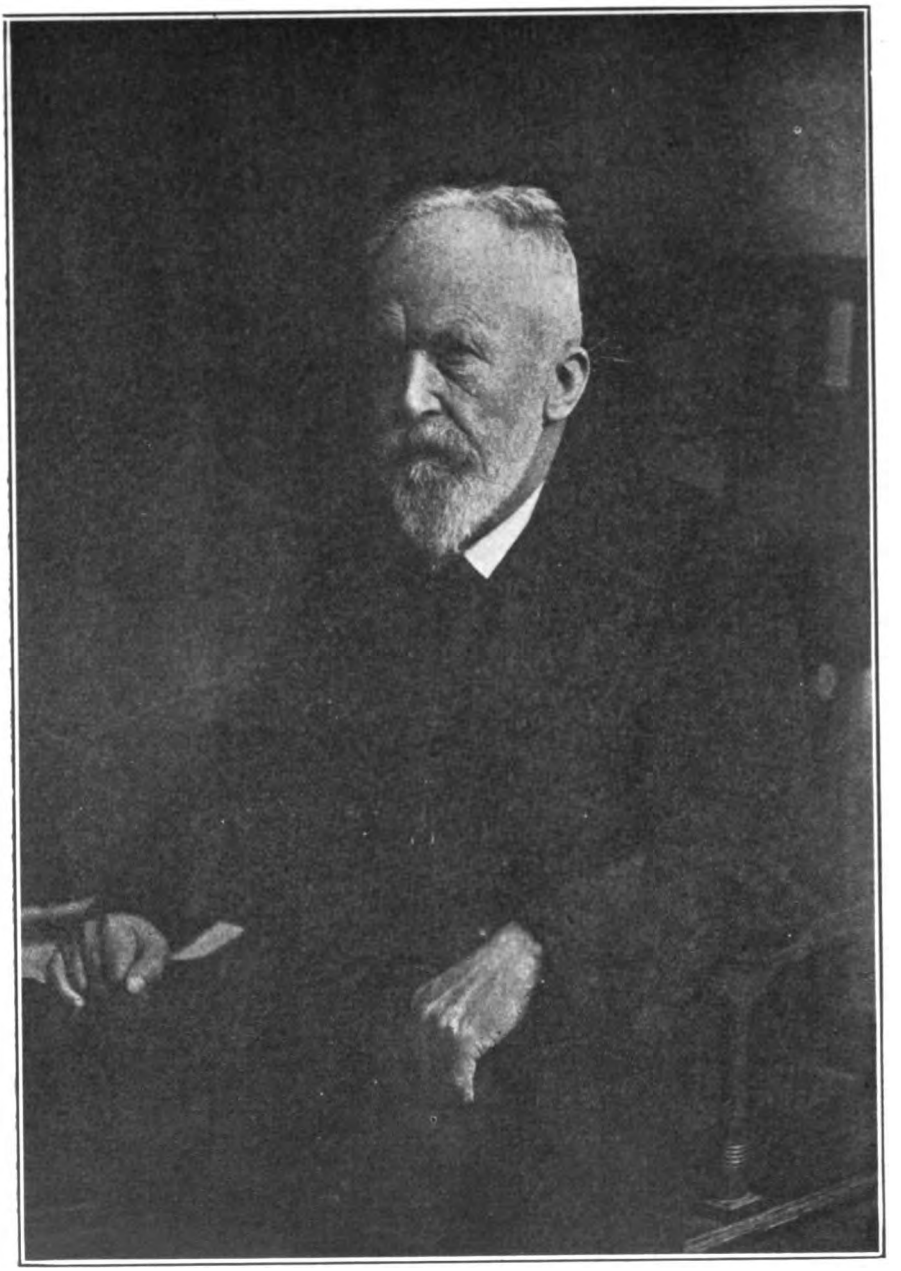

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A Medical Woman Looks at Leprosy

MARY MCKIBBIN-HARPER, M.D.

It may appear incredible that one making a tour of the great, wide, beautiful, wonderful world would pause to look at leprosy. To an acquisitive mind, however, the unknown is always a challenge and my meager knowledge of the disease was only that gathered from Osler's text and the pathology courses of Dr. Warthin which of course included the microscopic pathology of the infectious granulomata.

Many years later, leprosy was actually seen in Cuba and subsequently in Egypt but in the Orient one need not stop to see leprosy—it is everywhere present.

A lecture on leprosy by Dr. Ernest Muir of the School of Tropical Medicine in Calcutta; conversations on a Bengal Bay steamer with Dr. Dutta, a native leprologist associated with the eminent authority Dr. Fletcher, in Burmah, and finally Dr. Fowler's illuminating treatise placed in my hands in Shanghai, intrigued me into visiting leprosaria.

Upon return to the United States I began, like Captain Cuttle, to "search the records" for literature on leprosy and read everything available including pounds of government reports which I had through courtesy of Dr. George McCoy of the U. S. Public Health Service.

Though I am neither, leprologist nor dermatologist and have nothing *new* to contribute I have taken an especial interest

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in the fallacy of attaching a stigma to leprosy and the cruelty of leprophobia. Also, I cherish a hope that many busy practitioners who have not had leisure to visit leprosaria in different countries may share that experience with me.

A survey of the literature of leprosy reveals the fact that the disease has been baffling at every turn of the way. Though it is nearly fifty years since the discovery of the germ it is only rather recently that a proper medium for its culture has been found. Formerly it had to be grown with symbiants, the amoeba and the vibrio of cholera, after the method of Clegg.

In the study of the mode of infection, patient drudgery over bottles of leprous-fed flies and mosquitoes and the tireless study of rat leprosy by such authorities as Stefanski, Rabinowich, Kitasato and Drs. Donald Curry and Harry Holman have had their only result in certain exclusions.

Through centuries the search for a remedy has been world wide. The history of the remedy in common use begins in old Aruvedic medicine in India where an ointment of the hydnocarpins (the genus to which chaulmoogra belongs) was used for leprosy. The use of the oil in teaspoon doses became universal at a much later date, but it was so irritating and nauseating that tolerance did not last long enough to get appreciable results. Tortulis of Egypt first used it hypodermically, but results were unsatisfactory.

Sir Leonard Rogers, using the chemistry of Sudhamoy Ghosh an Indian, sought a non-irritating active principle. Contributions to this study were made by Heiser and Brill from the Philippines and others and Powers took up the work in the Wellcome Research Laboratory in London.

This world-wide chemical research was ended by the completion of the intricate chemistry of the mixed ethyl esters of the fatty acids of chaulmoogra oil by Drs. Dean and Wrenshall of the U. S. Health Service in the University of Hawaii.

One marvels that all along the line investigators have displayed, even in the smallest details, the precision of a Koch, the imagination of a Pasteur and the zeal and indefatigable persistence of Americans. Their vicissitudes (and this is true in the study of many diseases) form a considerable bulk of the literature on the subject.

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Leprosy, one of the oldest known diseases, has held the curious and morbid interest of the world through the centuries partly because of its incurability, deformities, loathsomeness and consequent separation from friends and ostracism from society, but particularly because Biblical or Jewish history has made the word leper a synonym for all uncleanness, physical and spiritual.

There is real tragedy in the old time picture of half-starved, scantily-clothed lepers, long sequestered in the fastnesses of hills and mountains, creeping stealthily forth into the light of day in quest of food wearing a warning bell or crying "Unclean, Unclean."

In modern times the heart-gripping experience of lepers have served as a basis for scenes in legitimate drama and film. The leper scene in Ben Hur was hardly less effective than that of the chariot race. The Ten Commandments dramatically presented a stowaway, a beautiful girl, emerging from a bale of merchandise in the hold of a vessel who subsequently scattered disease and misery in her wake. Thousands viewed this film but a very small proportion realized that the disease was not leprosy but syphilis symbolized as moral leprosy, and that the results of breaking the seventh commandment were presented. But the idea that leprosy is an acutely contagious disease was broadcast through the world!

A rather recent best seller introduces the story by the incidence of leprosy in a south sea trader, who bringing his vessel into a Pacific port learns for the first time in quarantine the true nature of his disease, crowns himself with a chaplet of flowers and leaps into the sea.

In Cuba I was pressed to visit the thrills offered to tourists —the cock-fight, the bone pile in Colon cemetery and last but not least the lazaretto or leper hospital.

Newspapers recognize the universal appeal in scoops about sporadic cases of leprosy. "Cured Mountaineer Once Fought Cure with a Shotgun," "Leper Settlement Viewed from Planes," "Brazilian City Invaded by Lepers Who Are Forced Back into the Colony and Police," are some recent headlines.

Extravagant claims and marvellous cures have been ex-

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ploited while the reports of skilled investigation have been so garbled that the truth is like a grain of wheat in an infinite deal of chaff. In consequent misconceptions a morbid curiosity has been added to an irrational lepraphobia.

In the progressive march of preventive medicine, mysteries must be uncloaked, superstitions and traditions trampled down and facts faced practically not sentimentally and fearfully by an informed public, marking time with the medical profession. The public ought to know just what leprosy is, where it is prevalent, what are the dangers of contracting it and whether it may be cured. The laity ought to know also that physically leprosy is not more unclean and certainly not more devastating or hopeless than some other diseases and that in the light of modern knowledge and belief that the stigma of spiritual uncleanness placed upon leprosy is most unreasonable. Such instruction should come from the medical profession either directly or indirectly.

It is not supererogation in a disease so little considered by the average practitioner, to suggest how these questions may be answered.

Leprosy is a new growth caused by the irritation of the Bacillus Leprae, discovered by Armauer Hausen of Norway nearly fifty years ago. The disease varied in manifestation and intensity may begin with a puffiness over the cheek bones and a macular rash from which nodules develop. These nodules (as all new growths poorly supplied with blood) break down easily and becoming further infected by other germs form ulcers which often invade the muscles so deeply that the resulting cicatrization produces that distorted or fierce expression known as "Leonine Face." Mutilations may be devastating, even to the loss of fingers, toes, limbs, etc.

There is a nervous form, however, in which the macules lose pigment, giving the "white spots" so often mentioned. But the two forms quite commonly appear together and few cases present all of the symptoms at the same time. Atypical cases may not be recognized at a glance. The director of a Class A Laboratory confided to me, "Yes, the tramp came but the joke is on us. We did not know that he had leprosy and did not examine him."

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As to the prevalence of leprosy it almost disappeared in the middle ages but has again become very prevalent. It occurs sporadically in the United States, perhaps sometimes developing after quarantine examination. To the free clinics connected with medical schools in our large cities there come scarcely enough cases to furnish examples to lecturers. A nationally known dermatologist opens such a clinic saying, "Here is one of the infectious granulomata with a small acid-fast bacillus—not tuberculosis" lest a whisper reach the press and the necessary teaching example be frightened away.

There are foci in the southern states, in the northwestern states brought from Scandinavia, in California brought from China, and the U. S. Naval Base Hospital No. 66 and the National Leprosarium at Carville, La., care for six or seven hundred patients. There are about twelve hundred lepers in the United States. But beneficent Uncle Sam has embraced hot beds of leprosy in Hawaii and in the Philippines. As the world grows smaller leprosy comes nearer.

There is little leprosy now in Europe except around the Mediterranean. It is very prevalent in Africa, through the Orient, in the Pacific Isles and in South and Central America and Mexico. There is a popular idea that leprosy is a tropical disease. This is not a fact but all diseases are aggravated in tropical climes where nutrition is below par and sanitation bad.

What are the dangers of contracting leprosy at home or abroad is a question that cannot be accurately answered until the mode of infection, which is being earnestly sought by workers all over the world, is definitely found.

Reports of investigators would fill volumes and a fund of knowledge has been accumulated. It has been shown that the disease is not hereditary. Children born of leprous parents removed at birth never have the disease. There is no evidence that it has ever been transmitted by vaccination. All agree that mosquitoes and other bloodsucking insects are not carriers. There is no evidence that flies are carriers (though they may be regarded with suspicion) and studies in rat leprosy furnish no evidence that rats are carriers to the human family. Jonathan Hutchinson's idea that a fish diet increases suscepti-

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bility has been exploded. It is the world wide concensus of opinion that infection comes by long contact as in house infection through bedding and clothing. We may then say that leprosy, though infectious, is not highly contagious and that facts do not justify the panicky fear of casually meeting lepers. The dangers of contracting leprosy at home under the existing precautions of the government are practically negligible and almost so in traveling abroad with reasonable care in selecting a domicile. I am often asked, "Are you not afraid to visit leper hospitals?" Emphatically, "No."

Can leprosy be cured? In a leisurely tour around the world in 1925 and 1926, acting as a medical correspondent (not making a leprosy survey) I visited leper hospitals and colonies and found leprologists everywhere using the mixed ethyl esters of the fatty acids of chaulmoogra oil hypodermatically and that many lepers had been returned to their homes clinically and bacteriologically clean and that the symptoms of many others had been greatly ameliorated by the same treatment. Are they cured? It is the habit of other infectious granulomata to "play possum." Tuberculosis often lies dormant for a time and then flares up. Neo-Salvarsan causes the symptoms of syphilis to disappear but there are recurrences and the ravages of the disease are found postmortem. We can say, however, that great numbers of lepers have been returned to their homes apparently cured—clinically and bacteriological clean and that these are most certainly arrested and non-contagious cases.

The press has made loud claims for a new remedy from Germany and Dorpat University, Esthonia, etc. This remedy, carbonic snow, is far from new, having been first used in skin diseases by Dr. William Pusey of Chicago in 1906, and by Dr. James Wayson of the U. S. Health Service in Hawaii for leprosy in 1911. Subsequently Dr. George McCoy of the same service reported on thirty-one cases unfavorably. Many other extravagant claims have been equally unreliable.

The Chaulmoogra treatment was used by all leprologists whom I met and in all leprosaria visited.

There are perhaps more than 250,000 lepers in India, having a population of 315,000,000. Indians regard disease as coming from the wrath of heaven and propitiate the gods instead of

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seeking cure. This fact with lack of sanitation, extreme poverty and heat, lowered vitality from need of proper food and intercurrent tropical diseases complicates the care of lepers. Overcrowding makes detection difficult, isolation is hindered by the strength of the family ties, but the lack of money to push the treatment is the paramount reason that comparatively few are under observation and treatment.

Among the thousands of pilgrims coming to sacred cities, especially Benares, are many aged and diseased who travel fourth class on trains so crowded that turbans, arms and legs hang from windows, in bullock carts, in rude ekkas, walk or are carried to bathe in the sacred waters or rivet the last earth-look on the sacred Ganges. I saw lepers among those hurrying down the steep steps of the bathing ghats with their little brass water pots, bathing and receiving the red mark of Brahma upon their foreheads, and occasionally I saw lepers lying on the steps among beggars, fakirs, holy men and the lame, and blind. I saw them often among the human wreckage hovering around the temples. But the great School of Tropical Medicine is in Calcutta and the impetus given the work on leprosy by Sir Leonard Rogers and now carried on by Dr. Ernest Muir is bearing fruit in the modern treatment in Leprosaria.

The leprosarium at Purulia in Bihal about two hundred miles northwest of Calcutta opened by the Germans many years ago was taken over by the C. M. S. (Church Missionary Society) at the time of the world war. At the time of my visit there were about eight hundred lepers here with forty-eight healthy girls and about thirty or forty healthy boys, children of leprous parents in a home a mile distant. There were many advanced cases at Purulia, some of them being burnt-out, many of them florid cases. A woman was noted who ate her curry with a spoon—a *faux pas* in India, where etiquette requires that eating be done with the fingers. One boy, who had been removed to the dead house as is the custom when death is imminent, was unexpectedly recovering under the chaulmoogra treatment.

The patients lived in three-room bungalows, four in each room and each had a daily ration of food and a few pice for extras which were spent at the leper store, dropping the money

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into a bowl of antiseptic. The money thus collected was distributed again.

The men and women were each building a hospital and there was rivalry between them, the men being slightly in the lead. The women carried mortar and crushed stone for lime quite as well as the men.

The patients here had better homes than the mud huts, scarcely distinguishable from camel stables, from which most of them came; their food was better and more plentiful than in their homes; they had occupation in the open air; intercurrent diseases were treated and reports of the Chaulmoogra treatment encouraging. They seemed contented, smiling in that sad and wistful way of India.

The largest leper colony in the world on Culion Island, in the Philippines, shelters six thousand lepers, one thousand having recently been returned to their homes clinically and bacteriologically clean. Our present Eastern Health Commissioner, Dr. Victor Heiser, did an early and monumental work in the Philippines and Governor Wood has done for education and sanitation in the Philippines just what he did so well in Cuba. What he has done in these respects alone for this mixed population—Malay natives, and Spanish with quite a Chinese admixture is sufficient reply to their complaint that he was a dictator.

The Philippine Health Department appropriates $600,000 a year for the leper colony and cannot do more. There were at least six thousand lepers untreated and General Wood recommended raising $2,000,000 by private subscription—a gift—that the fund might be administered by native workers, for he felt that an appropriation by Congress with appointment of a leprosy commission would be inhibitory among the fearful and suspicious Filipinos.

As we all know, General Wood coming to the United States to raise that fund to complete this work, so dear to his heart, suddenly passed away. Mrs. Dorothy Wade, wife of the Chief Pathologist at Culion, Dr. H. Windsor Wade, who had come with General Wood, remained to complete that fund as the General Leonard Wood Memorial. Many of the thrillers published by different newspapers were a far cry from Mrs. Wade's sane but touching appeals.

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There is an investigating station at San Lazaro, near Manila, but Culion Island is two hundred miles distant. I did not visit this colony but include mention of its activities not only because it is the largest and perhaps most interesting leprosarium in the world, but because it is of especial interest to Americans who have contributed to it so generously.

At the time of my visit to China conditions were very unstable, indeed, but I traveled considerably, returning frequently to Shanghai to feel the protection of the big grey boats of U. S. A. in the harbor.

The rickshaw coolies did not cry "Kill the foreigner," more frequently in Hongchow than elsewhere so I chartered a coolie with his rickshaw one lovely misty morning and crossing by the long causeway, the beautiful lake pictured on the willow plate, rode on up the high hill past the old moss-grown pagoda through a landscape artistically dotted with orange-turbaned pilgrims carrying little orange bundles (for it was the season of pilgrimages, quite as recreational as religious, to temples and pagodas) to a leper hospital embowered in roses and wisteria and such wisteria!

Dr. Wang, the native director of this hospital, known as Dr. Walter Main's Hospital for Lepers, greeted me with fine Chinese hospitality and told me enthusiastically of the results of treatment. Dr. Haddow, a medical woman from New Zealand, who had charge of the medication was past mistress of hypodermic technique.

The patients and hospital were immaculately clean and there was system to the Nth power. I have never seen any place such a smiling happy group of people. Even a victim of leprosy for thirty-five years, such a remnant of humanity that she seemed almost a disembodied spirit, unable to move on her bed, smiled with the remnants of her features.

I noted that the cases so terribly mutilated were those old cases neglected in treatment. Recent cases have all been ameliorated by treatment.

Dr. Wang gave me pictures of the hospital and patients, loaded my rickshaw with flowers, and accompanied me to the foot of the hill. I came away never having thought of statistics. The story of the work in this hospital could never be statistical

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however. The memory of that morning, the beauty of the landscape so fresh and green, the lovely lake and the old pagoda in the mist below, the fragrance of roses and wisteria, the smiling patients nearly all engaged in some duty, the very evident spirit of co-operation, helpfulness, kindliness and charming courtesy lingers with me still.

I like to forget that the lepers in China cannot be estimated and that except for missions there is practically no treatment and no segregation. Leprosy is rampant in Korea also. The Koreans are more stoical and more amenable to treatment than the Chinese and the pure chaulmoogra is used here because of the lower price and outdoor occupation emphasized.

My visit in Hawaii was all too short, but I glimpsed some of the leprosy work. Less than seventy-five years ago there was no leprosy here but it was brought in by the Chinese and at present 2% of the natives are leprous. It is cared for by an investigating station, the Kalihi Hospital in Honolulu, and after six months here without improvement patients are sent to the island colony. There were about one hundred at Kalihi and six hundred at Molokai. In this settlement occupying a peninsula nine miles square the lepers have their homes, gardens and flowers. Though there has been much unfavorable comment, it has been found wise to allow a healthy husband, wife or parent to accompany a patient here, or a leper may choose a mate from among the lepers in the settlement. Children are removed at birth to one of the homes for children of leprous parents in Honolulu—Kapiolina for girls and Kalihi for boys.

There are no guards here. It is much easier to keep lepers in the pleasant homes than to keep dismissed lepers from returning. Quite recently lepers returned to their homes as arrested cases are said to have insisted upon returning to the colony. I was told that the work in Hawaii is handicapped by lack of co-operation in reporting cases. Dr. Wayson did not seem so sanguine as to results in treatment as directors in other places.

Our own National leprosarium at Carrville, Louisiana, I am told is as it should be, a model for the world. It is generally believed that occupation in the open air and sunlight are

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potent contributors to the cure. It is therefore appropriately located in a warm climate.

From these glimpses into a few of the leper hospitals visited, it will be noted that leprosy is in itself a tragedy, that untreated it may be devastating, especially among those whose environment is poor and where intercurrent diseases are present, but that care and treatment such as given in modern colonies where there is also hospitalization ameliorates the symptoms and in many cases arrests the disease.

It cannot be gainsaid that the extraordinary fear of leprosy and the stigma attached to the disease which has brought misery to so many unfortunates is largely the result of biblical references to leprosy. The Bible being the most generally read book in the world, this fear and stigma is almost universal. Literature on this subject is abundant but I have found "Leprosy of the Bible in its Medical Aspect" and "Leprosy of the Bible in its Religious Aspect" by Dr. Ernest McEwen, a dermatologist, concise, scholarly and illuminating.

It is generally conceded that the word *zaraath* did not always refer to leprosy but to many different skin diseases. The victim was not taboo on account of contagion but because under Levitical law he was disqualified to worship and contact with him rendered others also taboo. Under this law he was not cleansed by any medical or hygienic process or measure but by a ritualistic procedure. It is conceivable that Levitical Law—man-made, as are all rules and laws, might not be the embodiment of all wisdom. Taboos do not appeal strongly to occidental minds. But it is not necessary, however, to enter into any theological discussion but rather seek to remedy the mistake and bring a sympathetic understanding to these unfortunates that they may be restored to self respect without which there can never be gladness in life. It seems to be the consensus of opinion among neurologists that there is no evidence that leprosy involves the nervous system specifically; but that the psychoses often found, may in many cases be induced by the thought of being a leper—an outcast from society. Medicine has provided a means of physical healing. Public opinion must provide a psychological background for a happy recovery and that background must be created by the medical profession.

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Problems in Dermatology[1]

I. OBSTINATE AND RECURRING PSORIASIS

By FORTUNATO ANTHONY DIASIO, M.D.

In spite of the rapid strides made both in the field of cutaneous diagnosis and in the realm of dermatological therapy within the last half century, there remain at present a few vexing problems which urgently need solution. These have been and still are the bane of the dermatologist and the *bête noire* of the practitioner of medicine who also is occasionally confronted with the necessity of solving them, especially if he be courageous enough to face the disconcerting situation unaided. We shall proceed to consider a few of these in the order of their frequency.

OBSTINATE AND RECURRING PSORIASIS

The most common of our difficulties presents itself in the form of an obstinate and recurring psoriasis which has, as a rule, already made the rounds of our colleagues before we are consulted. The question then arises, "what are we going to do for the patient?"

Since the etiology of psoriasis is unknown and a specific therapy is lacking, we have adopted the following plan for the stubborn case: For the scalp we recommend ammoniated mercury in strengths varying from 25% to 50% and put up in a base containing olei amygdalis dulcis . . . ℥ii and lanolin . . . q. s. ad. ℥i. On the face and hands the same ointment prescribed for the scalp is used but in 5% or 10% strength. We cannot permit the patient to anoint his entire body surface (depending on the distribution of the eruption) with the mercurial ointment, for the absorption of the element, more so if the salve be properly rubbed into each lesion, would be so great as to exceed the threshold of safety so that toxic symptoms (tubular degeneration of the kidneys, stomatitis, or even a

[1] A clinical lecture from the Department of Dermatology of the Lincoln Hospital, New York City.

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widespread erythrodermia) would result. Consequently, we favor the following combination for the body:

Acidi salicylici	gr. xv-xxx
Olei cadini (Müth)	ʒ. ss.
Resorcin	gr. x.
Lanolin	ʒ. ss.
Petrolati	q. s. ad. ʒ. i.

M. et Sig: rub into each patch with a tooth brush for 5 minutes twice daily.

The diet is invariably low in proteins except in young and growing individuals. Arsenic is used only in cases in which guttate lesions are present and it is prescribed in ascending doses for a short period of 6 to 8 weeks, up to the point of maximum toleration. The arsenical is then discontinued for 2 to 3 months when another course is ordered, if necessary. We prefer to use the following preparation:

Natrium arsenatis	2.00
Phenolis	1.50
Aqua destill	q.s. ad. 100.00

M. et Sig: office use.

The above mixture is given hypodermatically every day, beginning with *m*iii and increasing by *m*i daily until the patient will receive mxx per day when the process is reversed and the dose brought down to its initial quantity. This is followed by the prolonged rest period already suggested. Fowler's solution may be used instead, especially if the patient cannot visit the office daily, provided, however, that the liq. potassii arsenatis be taken by mouth *also* in ascending doses (drops) up to the point of intolerance and then discontinued in order to avoid the symptoms of arsenical intoxication (pigmentation of the skin, keratoses, etc.).

In patients showing endocrine disorders, we try thyroid, pituitary or a combination of both extracts, depending on the endocrinological dysfunction present, the age, sex and other factors under consideration.

Even though we find x-rays very efficacious and capable of making the eruption disappear, we do not use this agent routinely. Roentgentherapy does *not cure* psoriasis. There-

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fore once a patient has been introduced to the delightful ease, the freedom from greasy manipulations and the lack of personal effort in the management of the disease by means of this physical agent as compared with other methods of treatment, he (and more so she) will invariably insist on the use of x-rays to clear up a recurrence on another occasion, in spite of our reasons to the contrary. Failure to condescend usually drives the psoriatic to another dermatologist, to whom the patient will purposely narrate a false history as to the previous use of this convenient though potentially dangerous agent in the hands of the unskilled and injudicious therapist, for the sake of enjoying the blessings of an effortless treatment.

The use of salves, staining fluids and other local measures is looked upon with a great deal of disfavor by the average female patient in private practice.

When used in 1/4 skin unit in selected cases (i.e. patients who have not received x-rays previously and those who have had them but not within the last 12 months), 3 to 4 fractional doses are given at weekly intervals. If the lesions do not respond to this test dose, we then abandon this form of treatment, for otherwise the disease will become x-ray and therapeutic fast. To be persistent with x-rays, in spite of the failure to obtain an *early response* to this physical agent, will only lead to the production of telangiectasia and atrophy of the rayed skin, to the danger of the dreaded supervention of malignant changes in the involved areas and to the possibility of a law suit with its disastrous sequelae in the bargain.

X-ray therapy is also avoided on the scalp, for it is apt to be followed by a permanent alopecia. Rarely, we may, in selected cases, be tempted to give radiation a trial before we institute the treatment recommended for the scalp. Thus, 1/8 skin unit at weekly intervals for 4 weeks is given without any other local measures. Then after 3 weeks rest we proceed with the above therapy, at times with favorable results.

The value of the ultraviolet rays in the treatment of psoriasis has been repeatedly brought to the profession's attention by the many observers who have given this phototherapeutic agent an extensive trial. For instance, Hazen has emphasized

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the fact that after a course of generalized ultraviolet radiation, the interval during which the patient is free from his psoriatic lesions is longer after phototherapy than after the use of any other remedy recommended for the treatment of this disease. The point to be stressed in the practical application of this method of treatment is that the radiation must be *generalized* and not confined only to the patches of psoriasis. Moreover, it should be given in *sub-erythema* doses. Failure to give the proper dosage of ultraviolet rays (i.e. administering intensive or erythema, hyperintensive and massive doses) will often cause a spreading of the eruption so that the latter becomes universal and even metamorphose into a secondary dermatitis exfoliativa with occasional lethal results.

The Alpine lamp or any similar ultraviolet ray generator is set up so that the burner is 36 inches above the skin surface and exposing as much of the latter to the rays as is possible at this distance. The patient should lie on the table entirely naked, using goggles to protect his eyes and a jock strop or a dancing belt to cover the external genitalia. When the operatometer indicates that the lamp is working within the operating range and is thus emitting the maximum output of light, we permit the patient to expose each side of his body to the rays for ½ minute. The patient should be treated daily and the time of exposure on each succeeding days should be increased by ½ minute until each side is rayed for 5 minutes. Later when the skin has tanned the time of each body exposure is gradually lengthened so as to eventually allow 15 minutes for each one. The radiation is kept up every day at this rate until all the lesions disappear.

If any or all the above measures have been instituted and in spite of which the disease is still recalcitrant, our aim should then be to break down the therapeutic fastness by injecting intramuscularly 5 c.c. of whole blood which has been withdrawn from the median basilic bein. Any part of the buttocks may be used but we prefer to utilize the upper and inner quadrant and to inject into the upper and inner square of this quadrant. As a rule, to obtain the desired results it is only necessary to give 8 to 10 injections and spacing each one 3 days

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apart. One will often be surprised to note how the same therapy which previous to the autohemotherapy failed will, after the latter has been tried, give miraculous results and clear up the entire eruption in no time.

In our experience we have found that a combined autohemotherapy and phototherapy together with the occasional administration of arsenic as recommended above will yield the best results in most cases.

Heliotherapy is also good for psoriasis but it is not always available, especially in certain parts of this country. Also many patients cannot afford the expense to go to a sunny climate, so that in every respect the Alpine lamp is still our chief weapon in phototherapy.

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Some Industrial Effects Upon the Heart

By Morris H. Kahn, MA., M.D.

This presentation surveys the mechanical effects of occupation upon the heart and aorta and includes a consideration of the consequences of heart strain as well as the effects produced by direct or indirect external violence. There is a group of cases of heart strain in which the exact localization of the lesion is not recognizable, and yet the symptoms and disability are emphatic proof of the existence of some serious effect upon the myocardium. Other cases are easily diagnosable due to the pronounced physical signs that manifest themselves. Such are rupture of an aortic valve, or of the aorta, or an aneurysm; or even rupture of the heart itself. Occasionally the disturbance of rhythm indicates a definite lesion, as in auricular fibrillation or the development of extra systoles.

As long as human effort is utilized to drag, lift, pull or push weights that should be relegated to mechanical apparatus, there will be disatsrous effects upon the human organism in consequence of strain. It will take its human toll inevitably until it becomes recognized that the power of muscles in the human machine must not be stressed to the extreme. There is an exacting compulsion of labor in some departments of industry without regard to the conservation of the energy of the individual. Thus foremen, rivetters, hodmen, stone masons, sailors, soldiers, longshoremen, blacksmiths, porters, metal workers, and miners are still compelled to exert great and often sudden and violent effort while at work.

Heart strain may be fully explained as the outcome of extreme or prolonged exertion. It is the effect of stress or reiterated stresses upon the heart muscle with resultant stretching of the fibres beyond their elastic limits. It will come on earlier when there has been some pre-existing abnormal condition, such as increased blood pressure, or when the heart is not mature—as in young adolescents who do too vigorous exercise.

Although the machinery of the circulation allows for a

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rather wide field of responsiveness to effort, there are definite limits beyond which any attempt on the part of the heart and large blood vessels to maintain adequate circulation is injurious. The normal heart naturally adapts itself to those stresses which, in various degrees, we all have to encounter, but must be able to recognize the signs of any overstepping the limits of the heart's responsiveness.

A person properly trained in the laborious manoeuvres of his occupation and the postural leverage to be used need not fear strain as much as one unaccustomed to the labor. In some circumstances, a single feat of violent exertion may be followed not only by prolonged or even permanent inability to take exercise, but also by actual enlargement of the heart and disease of the heart muscle.

For years a man may pursue a laborious occupation without any apparent ill effects, but on one particular occasion, such as lifting a heavy weight in an uncomfortable or unusual posture, acute heart strain may develop. Thus, Antonio C. was for years a laborer doing strenuous work. One day, while exerting the utmost effort to lift a heavy stone onto a wheelbarrow, he suddenly felt as if something were tearing below the region of the heart. The pain was sharp and knife-like in character, situated in the region of the heart. During the two years that followed the injury to the heart he was almost totally disabled from work.

Heart strain of whatever degree must not be dismissed lightly because it is a long enduring condition. In general, improvement does not take place sufficiently to enable a man to resume a laborious occupation. The healing processes in such a mobile organ as the heart are very slow. The symptoms persist for an indefinite period and, with strenuous exertion, may be aggravated. Treatment can be summed up in the one phrase "Prolonged rest." The return from complete rest to full activity must be very gradual.

Direct injury to the chest wall does not infrequently produce a lesion of the heart or pericardium. This may manifest itself by a considerable variety of symptoms, depending upon the amount of localization of the cardiac damage. The prin-

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cipal clinical types of traumatic heart lesions that occur in consequence of direct violence may be classified as follows: (1) Contusion; (2) injury to the pericardium; (3) extrasystolic arrhythmia; (4) auricular fibrillation; (5) heart block; (6) injury to the valves of the heart; (7) injury to the aorta; (8) rupture of the heart; (9) penetrating wounds.

A blow in the region of the heart may cause a contusion of the precordial tissues sufficient to extend and involve the parietal layer of the pericardium. As the thoracic wall is markedly elastic, a severe blow or a sudden compression may gradually damage the intrathoracic space. The effects of such a distortion and displacement of the heart and mediastinum may be very severe producing symptoms of shock, and even resulting in death. But in the severe cases, which are often spoken of as concussion of the chest, the patient may become unconscious, go into shock, his face pale, his pulse weak and imperceptible, respirations shallow, and eventually a fatal issue. The prognosis in thoracic contusions depends upon the character of the injury. In cases associated with marked shock, the outlook is always grave.

The pericardium may react to a contusion or concussion with the development of an acute pericarditis, usually fibrinous in character, and often with slight effusion. Such cases may develop following a sudden fall or lurch forward in which the chest is struck against a projecting surface or edge. A blow to the chest by a missive or a fist may be the history.

It is well known that physical strain may produce auricular fibrillation; but auricular fibrillation may also follow direct violence to the chest. Exactly what the pathological changes are to produce this one cannot declare with certainty. However, the possibility of sub-epicardial ecchymosis in the auricular muscle must be considered. Once established, it has been asserted, auricular fibrillation has a tendency to recur or even become permanent. The symptoms produced by its development are quite conspicuous, promptly causing a more or less total disability. Joseph G. was struck across his chest by a large falling plank of lumber. Three months after the accident, his heart showed no enlargement and no murmurs, but

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showed rapid auricular fibrillation. There was no evidence of a previously existing heart condition. After a preliminary period of rest and digitalis, the patient was given quinidine sulfate. The heart then showed quite remarkable improvement with resumption of normal sinus rhythm. The symptoms also promptly disappeared.

Perhaps the most frequent form of irregularity of the heart action that takes place is that known as extrasystolic arrhythmia in which premature beats interrupt the normal heart rhythm. A less common cause for their occurrence, however, lies in the damage produced in the cardiac tissue by heart strain, or by direct injury to the organ from blows to the chest, or by indirect injury in cases of falling.

The location of the trauma in the myocardial structure will predicate the functional disturbances or arrthymia that may develop. Cases have been reported of heart block from direct injury to the chest. The pathological process that develops in the conduction system following a blow to the chest wall is obscure. It may be a slight hemorrhage in or about the node of Tawara or a functional change in the nervous mechanism.

Injury to the front of the chest, like extreme stress or undue effort may cause rupture of any of the valves of the heart. We may conceive of a violent concussion of the distended aorta just at the moment of full ventricular systole. Under such circumstances rupture of an aortic cusp might take place. In cases of rupture of the mitral valve, on the other hand, the blow must have fallen upon the heart in diastole, with the ventricle filled with blood. Besides injury to the aortic cusps the wall of the vessel frequently suffers in accidents due to direct violence to the front of the chest. A blow on the chest, a sudden fall, or the jar of any accident may cause rupture of the aorta with the formation of a dissecting aneurysm, or the wall of the aorta may rupture completely.

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The Treatment of Pertussis

By Earl M. Tarr, M.D.

Pertussis, one of the most serious diseases of infancy and childhood, is more profusely written-up in pediatric literature than almost any other childhood disease. A survey of the literature for the past fifteen years will satisfy the most enthusiastic of us that the various forms of treatment which have been developed have not always, or often, been highly satisfactory. It is but fair to state, however, that considerable progress has been made in the prophylaxis and treatment of the disease and this progress is not the result of the labors of the pessimist.

The use of ether intra-muscularly has enjoyed a liberal trial. The result of this form of treatment is amply discussed in current literature. The same may be said of Roentgen-ray. Various antispasmodics, of which benzyl-benzoate apparently ranks prominently, have been used. The inadequacy of all of them has been admitted. The bromoform-cod-liver oil preparations, of which there are several, have been used and highly applauded by certain foreign students. Vaccines and bacterins have their supporters in this country as well as abroad. There are also those who hold them to be of slight value. The concensus of opinion at the present time seems to indicate, however, that the hope of the future as regards the treatment of pertussis lies in the direction of vaccines.

To go deeply into the bacteriology, symptomatology, diagnosis and complications of pertussis would be but a repetition of what has been made available to those interested in the subject. The members of this Society are, for the most part, engaged in general practice and I shall therefore attempt to confine my remarks to the practical rather than to the technical manner of treatment.

Prophylaxis is of the utmost importance. The disease spreads by direct contact and this is generally known. Control of the disease is largely a matter of education, as is so true of most of the other contagious or communicable diseases, and yet the quarantine of pertussis, in most cities, is a high farce. In

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small towns and rural communities the situation is absolutely deplorable. It is not my intention to fix the blame for this state of negligence but it would almost appear that those engaged in general practice see by far the great majority of these cases and that a large proportion of the blame should justly be absorbed by them.

Early diagnosis, before the "whooping" begins, is rarely possible. This, however, should make us all the more suspicious of "colds" and "coughing spells" during the season when pertussis is most prevalent. To place a temporary quarantine on all suspicious cases is within the power of most of us and such a procedure would undoubtedly help materially in the control of the disease. This would do much to educate the laity regarding the extreme seriousness of pertussis. It should arouse more interest among those in general practice and it would undoubtedly secure the whole-hearted co-operation of the local health department. While the present situation is much better than it was a few years ago it still is true that, "A thoughtless physician is dealing with a misinformed and uneducated public."

General Treatment

Lack of uniformity in the general treatment of pertussis is no more pronounced than is the case of specific treatment. Very few doctors in general practice carefully outline a regimen for the sick child. Sedatives and antispasmodics are often prescribed with a gesture and the matter closed. Because of this common error it may be helpful to call attention to three important points in the general treatment of the disease.

Rest: It is obvious that the sick child (and he is usually sick) should not only be allowed but he should be encouraged to take more rest each day. Two hours in the morning and three in the afternoon should be advised. Strenuous play and all exciting games should be forbidden. If sedatives are to be used they should be carefully selected and given, not with the hope of limiting the coughing spells especially, but for the purpose of "slowing up" the activity of the child and making the rest periods less of an issue. Vigorous quarantine is of inesti-

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mable value chiefly because it acts as a barrier to unnecessary excitement. Were this thoroughly explained to parents by the attending physician there is every reason to believe that their co-operation would be assured.

Diets: There has never been a time in the history of civilization when fraud has been practiced with more flagrancy than today. "Dieticians" have sprung up everywhere and they have a "diet" which is guaranteed to cure practically every human ailment. The more absurd the food combinations of these diets the more of them are sold. This industry, unfortunately, is not altogether confined to the ranks of the quack. It has become so highly lucrative that many of those practicing regular medicine have more or less thoughtlessly, but probably conscientiously, adopted certain diets for the treatment of disease. It is not to be understood that I do not believe thoroughly in rational eating. But the "diet quack" of today has nothing rational to offer. I have been called upon to treat children ill with pertussis who had been fasted, fed on fruit juices, raw vegetables and sea-foods to the exclusion of all else. These children had all been under the care of physicians who were licensed to practice general medicine; it is for this reason particularly that I call attention to the matter of diet.

The diet for scurvy, rickets and a very few other diseases, if they may be so called, is most important and almost specific. Unfortunately this is not true of pertussis. I cannot picture a sane physician in his wildest moments of enthusiasm attempting to relieve the symptoms of pertussis through diet. The entire matter may be dismissed by saying that the child may be allowed any and all of the foods he has been accustomed to and which have caused no distress. You are all perfectly familiar with the fact that large meals are more apt to be returned than small meals. This is our only reason for suggesting that children ill with pertussis be given four or five small meals rather than the regular three hearty ones.

Change of Climate: Frequently a change of climate seems to have a beneficial effect. Just how this should be interpreted is open to debate. My personal opinion is that the improvement is not so much due to the change of climate as it is due to the

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change of ENVIRONMENT. Out here on the Pacific Coast a great many children are sent to the sea-shore when they develop pertussis. Some of them improve rapidly with no special, and very little general, treatment. Some of them run the general course. My secretary and nurse have investigated several hundred of our cases that went to the beach. The records do not show any striking improvement in these cases.

We all know that fresh air and sunshine are beneficial to the child suffering with pertussis. The attacks of coughing are certainly fewer and the severity of the attacks considerably less in the cases of those children who live in the open. At the beach the accommodations are usually cramped and as a consequence the children are obliged to spend most of their time out of doors. They get an abundance of fresh air and sunshine. The day is spent in the open with other children and there are more varieties of amusement at hand than was the case at home. If these children actually improve more rapidly under such conditions it is probable that certain psychological factors must be taken into consideration. In most instances the mother gets more rest and is less annoyed. Reports on the progress of the child come from the mother and it is possible that her reports will be more favorable if she is less distressed than she was before going to the beach. Aside from the fact that the child practically lives in a bathing suit on the hot sands of the beach, the sea-side has little to offer therapeutically. The change of environment perhaps does play a part.

SPECIFIC TREATMENT

Over 75% of our cases were given vaccines or bacterins. The material was carefully selected and given in rather large doses. For instance, the special bacterial vaccine, made from Pertussis Bacillus, is usually given according to the severity of the symptoms and the stage of the disease. The directions on the package call for .1 c.c. as the initial dose and the subsequent doses of .2, .3, .4, and .5 c.c. Instead of following this plan I have, regardless of age, always given much larger doses. An initial dose of .5 c.c. rarely gives any more local or general reaction than 1/5 as much and the response is much more satis-

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factory. Subsequent doses of 1 c.c., 1½ c.c., and 2 c.c. are generally given. When as much as 5 c.c. of the special vaccine has been given the symptoms usually subside rapidly. It has been my observation that when this amount of vaccine fails to produce highly satisfactory results you need not expect much improvement from vaccines, regardless of the amount you give.

For prophylactic purposes vaccines unquestionably should be used. Our records bear out the contention quite generally that the mixed sero-bacterins are preferable. As a prophylactic as well as a curative treatment for pertussis the chief objection to vaccines is that they must be given hypodermatically. In dealing with young children considerable tact must be used; a certain amount of fear and trembling will always be met with and everything possible should be done to gain the confidence of the child. A perfectly sharp needle thrust deeply and quickly into the tissue will cause very little actual pain. In fact many injections have been made without the child experiencing any pain whatsoever.

In estimating the results of treatment with vaccine it has been my custom to secure the opinion of the parents of the child along with the written opinion of my nurse. My own opinion is added to the history and the final conclusions are drawn by my secretary who makes the tabulations. In this manner we attempt to obtain a balanced opinion. The enthusiasm of one of us, as a result of a few brilliant and outstanding cases, is tempered and evened up by the totally impartial opinion of another.

Conclusions

1. Ether injections cannot be recommended. The discomfort is too great and the danger of necrosis too certain.
2. Antispasmodics, as usually given, are of little value.
3. Roentgen-ray treatment is not without danger. Its indications are limited.
4. Change of environment often brings about beneficial results.
5. The treatment of pertussis should be both general and specific.
6. The general treatment consists in restricting the activities of the child; in securing more rest and building up the general condition. Small light meals, served at three or four hour intervals, are advisable. A change of scenery should be supplied when convenient. Sunbaths are

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indicated in most cases. The more time spent in the open the better. Rigid quarantine should be regarded as an essential to the general treatment.

7. Vaccines and bacterins offer the most in the way of specific treatment. They should be freshly prepared and given in larger doses than is the general custom.
8. Complete records of over 1,000 cases of pertussis treated with vaccines show a low mortality, the complications were few and of little importance, and the children emerged from the disease in reasonably good condition.
9. A few cases will respond brilliantly to various forms of treatment. Those engaged in general practice dare not resort to forms of treatment that are not reasonably sure to bring about some definite improvement. Obstinate cases are not uncommon and in dealing with them the physician is justified in trying any of the recognized procedures.
10. A good routine treatment consists in rigid and early quarantine; strict adherence to the general measures brought forth in this discussion and the early use of vaccines. Larger doses of vaccine with fewer injections is worth a trial.

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MEDICINE ABROAD-II

Charles University of Prague, Czechoslovakia[1]

The Institute of Histology and Embryology

History of the University

Charles University is one of the oldest in Central Europe, having been founded by the Czech king, Charles IV, in 1348. After the fall of Czech independence the university was gradually Germanized, but the rise of Czech nationalism in 1883 caused it to be divided into two separate institutions, one Czech and one German. In the year 1918, when Czech independence was restored, the Czech University became the national university, resuming its original name. The German University still exists at Prague as an independent state university for the German minority.

History of the Institute

The Institute of Histology and Embryology of Charles University has been in existence since 1883. Professor Spina was its first director and Professor Janošík, its second. In 1895 Professor Janošík was appointed professor of normal anatomy, and the professorial chair of histology and embryology was granted to Professor Rohon, who occupied this post for twenty-five years. He was succeeded in 1915 by Dr. Srdínko, the present director of the Institute.

The Institute of Histology and Embryology was for many years the humblest of the Institutes of the medical faculty. In its early days it occupied only four rooms which served both for teaching and for scientific research. These rooms were entirely

[1] Prepared by Professor Otakar Srdínko for the Rockefeller Foundation, 1930. The report contains several references to Purkynĕ; for biographical sketch see Professor Victor Robinson's essay in *Scientific Monthly*, 1929, 217-229, or *Pathfinders in Medicine*, 1929, 361-380. Several portraits of Purkynĕ appeared in the Medical Review of Reviews, in the issue of May 1930.

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inadequate, as was the equipment, and the head of the Institute, therefore, directed all his energies toward the establishment of a new institute. As the country was still under Austrian rule, he failed to accomplish his purpose and it was not until 1923 that, as a result of a grant from the Government of the Czechoslovakian Republic, the cornerstone of the new building was laid. Teaching was begun in the new Institute on October 2, 1925, and the school was formally and publicly inaugurated on April 16, 1926, in the presence of Dr. T. G. Masaryk, president of Czechoslovakia. Its doors were opened to the scientific world by the session of the Congress of the Anatomical Society (*Association des Anatomistes*) which, at the invitation of the head of the department, was held in the rooms of the Institute at Prague.

General Plan of the Institute

In planning the new modern institute, which must serve several generations, a number of requirements had to be considered. First of all it was necessary to find a site in proximity to the other theoretical departments and hospitals of the University. The section of the building to be used for teaching purposes was to be separate from the section containing the laboratories for scientific research, in order to permit undisturbed research work. At the same time, it was necessary to arrange the rooms in relation to the frequency and nature of their uses. Owing to the fact that one building was to house two departments, it was necessary to adjust in a suitable way the rooms for the common use of both departments. The rooms to be used for administrative purposes and the living quarters of the staff, were to be located in the least exposed places, such as the basement. Future growth had also to be taken into consideration. As the number of the students is large and is constantly increasing, it was necessary to give ample space to the teaching part of the building. For reasons of economy, it was planned to have a large common lecture-room in the center of the building, easily accessible from the main staircase to the students of both institutes. For the less numerous undergraduates attending the lectures of the docents, it was proposed to

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have another and smaller lecture-room. Great care was exercised in planning the student laboratories, in which it was necessary to provide a arge number of working places (at least 150), adequate north light, and an arrangement of the seats which would prevent the student from being disturbed by the shadows of persons passing his table. The plan for an amphitheater suitable for a lecture-room but not for a working laboratory and which would necessitate walking from one room to another was disapproved. This difficult problem was finally solved by building two semicircular rooms, one on the ground floor and another on the second floor, connected by a vertical staircase. The tables in these rooms, arranged in concentric semicircles, have plenty of oblique light from above due to the considerable height of the windows in the lower rotunda and to a skylight in the upper one.

The cloak-room for the large lecture hall is directly under the floor of the hall, while that for the two semi-circular rooms is situated on the first floor. A special room furnished with chairs was set aside for important examinations, while for students preparing for examinations a special study room was provided.

To make possible intensive scientific work, it was necessary to arrange a laboratory for each of the four assistants, in addition to an office and laboratory for the professor in ordinary, as well as for the professor in extraordinary. A special laboratory was provided for advanced students and another for visitors from hospitals. The latter is expected to form the necessary link between the theoretical work and the work of the hospitals. Even a laboratory for visiting scientists from abroad was provided. Because of modern developments in histological and embryological methods it was found necessary to supply the Institute with a number of auxiliary laboratories for scientific research (rooms for macroscopic and microscopic cinematography, drawing and modelling rooms, x-ray laboratory, tissue-culture room, laboratory for microchemistry, dissecting room etc.). Keeping in mind the constantly increasing needs of experimental work in histological and embryological investigation, an operating room, rooms for housing animals to be used

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for experimental purposes, a ranarium, and an aquarium were included in the plans. As for the technical management of the building, modern and hygienic equipment was considered indispensable.

Location of the Building

The building of the Institute is located in Albertov, in a quiet quarter occupied only by the buildings of scientific institutes and in close proximity to the other theoretical departments. There is no street traffic here. Amost all the research laboratories are placed in the front of the building, which faces the north, thus avoiding the disturbing effect of the sunlight. In front of the building there is an open square. As the first requisite for the development of the Institute is sufficient light, all possible care has been taken to keep the neighborhood of the building open in the future.

The ground plan of the building is E-shaped. The longest side of the letter represents the front of the building, which faces north. The right wing of the building is occupied by the Department of Histology and Embryology, while the left wing houses the Department of Physiology. The building has two stories and two basements, at least in the right wing. As the ground is a little higher in the left end of the building, the subbasement was omitted here. The front has, on its right, the semicircular rooms mentioned above. In the central part of the building, in the rear, is the large lecture-room.

Location of Rooms in Institute

The central part of the building is common to both the institutes of histology and physiology. Here are located the main entrance, the vestibule, and the central staircase leading to the first floor and to the first basement. In the vestibule is the gatekeeper's lodge; between the ground floor and the first floor, under the raised part of the floor of the large amphitheater, is the cloak-room for students. In the height between the first and second floors is the entrance to the large Purkyne lecture-room. In the first basement are the automatic telephone switchboard and the living quarters of the porter. In the subbasement there are: the machinery room of the central heating

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plant, with storage batteries and commutators; the transformers and the switchboard for the distribution of electricity; the central exhaust fans, etc.; and the main lodgings of the janitor. All floors in the central part of the building are connected by a passenger elevator.

The space allotted to the Institute proper is divided into four sections: classrooms, laboratories for scientific research, administrative offices, and living quarters. The section reserved for teaching purposes is entirely separated from the scientific laboratories, so that any disturbance is impossible. The ground floor is reserved for classrooms. These are, beginning at the entrance, the small Prenant lecture-room with preparation room and the laboratory for the demonstrators; the lower rotunda connected with the upper one by a special staircase, which also leads downstairs to a room in the basement containing a collection of embryological preparations and models; the preparation room for the lower rotunda; the student office; and the examination room. In the rear are the living quarters, separated from the rest of the building by a closed corridor.

The first and second floors are reserved for scientific research. On the first floor there are: in the north front, the laboratories of the second, third, and fourth assistants; the library; the laboratory and office of the professor; the office of the secretary; the laboratory of the first assistant; the entrance to the staircase uniting both rotundas (used by the scientific staff only). In the west front of the wing are located the following rooms: the modelling and drawing room, the dark room with special corridor, the photography room, the washroom, the laboratory for advanced students and hospital workers, the x-ray laboratory; and in the south front of the wing are the aquarium and the chemical laboratory.

On the second floor are found: the laboratory and the office of the professor in extraordinary, the laboratory for the visitors from abroad, the neurological laboratory, the tissue-culture room, the demonstration room, the entrance to the upper rotunda (for the scientific staff), the preparation room, and the office of the director. The director's living quarters are also

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here. Several less frequently used research rooms are placed in the first basement.

The basement contains: the stock-room, the dissecting room, the museum, the operating room, the room for animals to be used for experiments, and the preparation room. The remaining rooms are lodgings. In the south wing there is also the storeroom for combustibles.

In the sub-basement there are: the machine and storage battery rooms, the central generating room, with the main transformer; the commutator and electric current switchboard; and the central exhaust room.

Because of the advantage of having the lodgings of the staff members and employees in the building, adequate rooms have been planned. This arrangement insures constant supervision and economical use of the building and its equipment. The south front and the adjacent part of the west side of the wing are reserved for lodgings. On the second floor are the rooms of the director; on the ground floor three rooms for the assistants; in the basement the lodgings of the porter and janitor. There is a room containing two beds for guests from abroad on the second floor, near the office and lodgings of the director.

Description of the Rooms

Owing to the lack of space, only the most essential rooms will be described here, with special attention given to their equipment.

The large Purkyne lecture-room is arranged in the form of an amphitheater and the floor is raised, being higher at the rear. Eleven rows, containing a total of 331 seats, are divided into three groups so that the hall is entered by two corridors which lead to a wide middle section and two narrower side sections. The curve of the rows of benches in the semicircle is very shallow. Each seat is 50 cm wide and can be lowered noiselessly. The light color of the ash benches adds to the general impression of light in the room.

The light in the lecture-room is furnished partly by high windows in both side walls of the room, and partly by a skylight enclosed in a cupola. Artificial light is provided by eight in-

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candescent ceiling lights, producing a white light which does not change the color of objects and diagrams. Special electric machinery darkens the whole room by covering the side walls and the skylight at one and the same time. This machinery works very quickly and noiselessly because the machines are immersed in oil. Thanks to the speed with which the machines can be operated, the lectures need not be disturbed when it becomes necessary to darken the room for projections. On the desk before each seat there is a little lamp which gives a cone of light. This is sufficient for note-taking, yet it does not disturb the darkness of the lecture-room. As there are 331 seats in the hall, this was a difficult problem to solve.

There are two kinds of blackboards in the lecture-room: the board placed behind the lecturer (measuring 360 by 150 cm) which can be lowered and raised mechanically, and six smaller ones, placed three on each side of the center blackboard. Above each group of blackboards is an arrangement for suspending diagrams which can also be raised or lowered.

The lecturer's table is 7 m wide and is arranged in the form of an experimental table, slightly rounded. It is covered with black slate and provided with switches, water and gas jets, and with a telephone connecting the lecture-room with the preparation room and the projection box. The projection machinery of the lecture-room consists of two independent sets of apparatus, which are placed in the preparation room, one for microscopic and one for megascopic projections. A transparent linen screen placed behind the backboards is used for these projections. The cinematographic apparatus is in the lecture-room and has a special screen. For the megascopic and microscopic projections there are large Zeiss machines. As the megascope requires a light of high intensity while the microscopic projections are dependent merely upon the relative light power of the source of light (arc-light 5-10A), and not upon the absolute intensity of the light, which can at times ruin the microscopic preparations, two independent sets of apparatus were instaled. Both machines are placed on a raised platform in the rear of the room. The choice of an appropriate screen was a difficult task, as there are many defects in the type usually employed. The opaque

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glass screen proved to be unsatisfactory and was therefore rejected, and a special linen screen impregnated with a mixture of wax and resin was chosen in its place. On this screen the picture retains its intensity even when observed obliquely. This screen is placed behind the blackboards and becomes visible when the blackboards are raised. The cinematographic projection box in the lecture-room. For this there is a *perlantine* screen, which can be placed automatically at various heights. When not used, it can be rolled up and covered with black linen which protects it from dust as the screen has a rough surface. The disturbing impression of a large white area in the front wall is thus removed. The projection lamp is placed in the projection box. It is of the reflecting type, Mechau-Leitz, and has uninterrupted film movement, thus making it possible to regulate the frequency of the projected pictures to as few as four pictures an hour.

The students enter the lecture-room at either side of the projection box through two doors leading from the main staircase to the hall. The problem of the lecturer's entrance was solved as follows: the lecturer passes through the corridor under the floor of the lecture-room and enters the preparation room, which is just outside the hall, behind its front wall. In this way, and by removing the projection apparatus from the lecture-room proper, it was possible to use for the students the best places in the middle section, which would be lost by using the usual plan of seating arrangement.

The student cloak-room for the large lecture-hall is under the floor of the hall. It is situated on a gallery between the ground floor and the first floor, and is entered from the main stairway.

The hall was named for the great Czech histologist and physiologist, J. Ev. Purkyne, who is the most important scientist in this field in the Czech nation.

The second lecture-room is used for lectures attended by a smaller number of students, such as those given by the docents. The floor of this room is slightly graded but no stairs are used. The twelve rows of adjustable seats contain eighty places. There is also an arrangement for darkening the room. The

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blackboards can be raised or lowered by hand. Behind them is a transparent screen similar to the one in the main lecture-room. The projection lamp is placed in the adjoining preparation room on a platform. The preparation room is also used as a laboratory and study by the demonstrators of the department.

The second lecture-room was named for the late M. Prenant, professor of histology in the Paris Faculty of Medicine.

The student laboratories consist of two semicircular rooms. One of these is on the ground floor, while the other is on the second floor directly over the lower rotunda. The two rooms are connected by a staircase, in the middle of which (on the level between the floors) there is a balcony. This serves as a cloak-room for both the upper and the lower rooms.

The lower rotunda has three concentric rows of tables, semicircularly arranged, containing seventy-five working places. The tops of the tables are black. They are made of wood which has been treated with paraffin. Each place is 70 cm wide and is provided with water, gas, and an electric switch for a microscopic lamp. The water and gas conduits and also the electric wires are located in the hollow cast-iron supports of the tables. As the windows extend to the ceiling of the first floor, the light comes from such a height that the students have plenty of it, and thus have no need to obstruct each other's light. The columns between the windows are very narrow. Artificial light is supplied by four incandescent ceiling lights which give a white light. The blackboard and the professor's desk are placed almost in the center of the semicircular horizontal section of the room. In the rectangular space behind the blackboard there are five wash-basins for the students and electric thermostats for drying microscopic sections. This lower rotunda was named for the emiment Czech cytologist, Fr. Vejdovsky.

The upper rotunda is arranged in a similar way. There are seventy-five places. The only difference is that it is not so high because the skylight cupola furnishes plenty of light. The upper rotunda is named for another eminent Czech histologist, embryologist, and anatomist, J. Janosík.

The needs of the students, in their laboratory work, are met by the seventy-five microscopes, one for each student, placed at

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their disposal in the preparation rooms of both rotundas. The microscopes are provided with objectives, achromatic 1,3,6, and ocular glass H 4 (Reichert, Steindorf). They are placed in special cupboards and each has a number which corresponds with the number of one of the tables in the rotunda. No student may receive his microscope from the clerk who distributes the laboratory supplies, until he has placed his registration card in the place occupied by the microscope in the cupboard. In this way strangers are prevented from entering and taking advantage of the rush of the students to steal instruments; and it is also easier to control the condition of the microscopes, as any damage can be discovered at once. Each microscope has a specially constructed lamp. In the corridor outside the lower rotunda are numbered cases, in which the students keep their microscopic preparations.

The study room for students preparing for final examinations has three windows and four rows of tables arranged on wide steps. There are forty-five places in all. The extraordinary number of students who use this room proves the need for such a warm, well-lighted, and quiet place for study. The room is open even on holidays.

The examination room has four windows, four tables for microscopic work, and one desk for theoretical examinations. This room is divided by a low railing into two parts. One part is reserved for those taking the examinations, and the other contains benches for students who wish to be present at the examinations. There are places for forty to fifty students on the benches. Experience has shown the didactic importance of permitting students to be present at the final examinations.

The museum is immediately underneath the lower rotunda. Here are found collections of microscopic preparations, embryos, and models. It is connected by a special staircase with the lower rotunda. This rotunda has been named for the great embryologist, O. Hertwig, who was the author's master.

Research Laboratories

All the microscopic laboratories for the scientific staff and for visitors (the laboratories of the professors in ordinary and

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in extraordinary, the four assistants, the hospital workers, advanced students, and guests) are uniformly arranged. It may be sufficient to give here a description of one that is typical, the laboratory of the assistant.

The assistant's laboratory has two windows. It is provided with a long table for microscopic work which occupies the entire width of the wall under the windows. It is quite narrow, so as to facilitate work with the microscope, and is covered with an oak board which is painted black and paraffined. The table has two working places, one at each window. Each working place is provided with water and gas, a quadrangular porcelain sink, and an electric switch. Underneath the table, in the space between the windows, there is a case containing a private collection of microscopic preparations. The lid of the case forms part of the table top, and is hermetically sealed to prevent dust from entering. Inside, the case has several drawers for microscopic preparations arranged horizontally, another drawer placed vertically, and a drawer for objects embedded in paraffin. Objects in collodion are put into small bottles and placed in a compartment of the latter drawer. Under the table top there are also small tin-lined drawers for supplies, such as dry blotting paper, etc. These drawers can easily be pulled out.

The writing table is placed against the right wall so that the light may come from the left of the writer. Its top is covered with linoleum. Above it there is an enclosed bookshelf. This arrangement places the books within convenient reach of the table.

For work with acids, paraffin, etc., there is a special, smaller and higher table, the top of which is covered with eternit. This table rests against the left wall. On it are a small paraffin stove and drying kiln, electrically heated, and, to one side, a thermostat.

In the opposite wall there is a small chemical hood protected with asbestos and connected with the ventilating flue. A wardrobe and a large table with two chairs for conferences complete the equipment of the room.

All the assistants' laboratories and that of the director are connected by doors. This facilitates the supervision of the

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laboratories for the head of the Institute. Of course, each laboratory also has its own door from the corridor. In the first assistant's laboratory there is a cupboard containing all the valuable optical equipment with the exception of that used in photography.

The library of the department has ten enclosed bookcases, each divided into six sections. There are three windows, and at each of these a double study desk and two chairs have been placed. In the length of the room there is a long table, on which are distributed recent scientific publications, especially journals. In the library there is also a collection of microscopic preparations enclosed in glass drawers.

The modelling and drawing room has in its center an extremely long table, painted black, on which are kept the apparatus for making wax models by the Borns method, a drawing-board, and a small chemical hood built into the wall. There are also two large cupboards for diapositives, in special boxes, and a large table for preparing photographic solutions.

The photographic rooms consist of the dark room, corridor, and the photography room. The dark room is separated from both adjoining rooms by a dark corridor. In this way it is quite impossible for the sensitive photographic material to be spoiled during the work, by daylight, when persons enter or leave the room. The dark room has special tables for developing, and a vertical magnifying apparatus. In the corridor are the cases for preserving sensitive material and a drying kiln with electrical heating and ventilation. The photography room contains the apparatus for microphotography using both ordinary and ultra-violet light, the apparatus for macro- and microcinematography (the latter with its own motor system), the reproduction equipment, and an Edinger drawing apparatus. The photography room also has two large cases containing optical equipment. This room can be darkened in the same way as the dark room.

The x-ray room contains a "Meta" apparatus of domestic make, with special lamps, and photographic appliance. It is used for photographic and experimental work.

The aquarium contains five marine aquaria on the east

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wall, ten smaller ones on an ordinary stand at the windows of the west wall, and five large aquaria and terraria at the windows of the south wall. Curtains protect the vivaria when necessary. The aeration of the aquarium water is done by means of an electric compressor with an apparatus for reducing the air pressure. The machinery for this is in the ranarium in the sub-basement.

The chemical laboratory has three windows. In it are four chemical tables with water and gas conduits, electric switches, and three wall-shelves supported by brackets, two for the precision scales and one for a centifuge; also a cupboard containing glassware and chemicals including histological stains. Besides the usual chemical equipment there is the apparatus for special work in microchemistry and a small glazier's table.

The tissue-culture room is divided into two aseptic sections separated by a glass partition from the corridor. Each section is provided with a wall-shelf with glass top, a wall case containing the necessary instruments, and a thermostat. In the corridor there is a wall-shelf with a centrifuge, a hot-air sterilizer, an air-pump, a Kochs pot, a small autoclave, and an ice-chest, and another cupboard. The walls are painted in enamel, the floor being of terra-cotta.

The neurological laboratory, which has two windows, contains, in addition to tables, a large Jung microtome for cutting the entire human brain, a macrotome, and a special neurological microscope. Cupboards containing supplies are also placed in this room.

The operating suite consists of the room for animals, the preparation room, and the operating room. All these rooms are painted in enamel and have terra-cotta floors. The animal room has one window and contains a large chemical hood built in the wall. This arrangement prevents the neighborhood from suffering because of the unpleasant odors of the animals. There is also a tub for bathing animals and a wall-shelf with a glass top. The preparation room has a similar wall-shelf, a large sterilizer, a special wash basin, and a cupboard containing gowns, etc. The operating room proper has a special inclined operating table with oblique levels, a special wash basin with

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aseptic contrivance, an intensive daylight ceiling lamp, a reflector, instrument cabinet, auxiliary tables, etc.

The animals to be used for experimental purposes are kept in the animal rooms. There are two of these, equipped with cages, stone floor, and a tub with warm water for bathing animals.

Mechanical Equipment of the Building

The building is heated by steam, which is produced in four boilers under low pressure. Only in the Purkyne lecture-room is another type of heating used: radiators and hot air. Nearly all the wash basins in the building have running hot water. The automatic telephone connects with fifty stations in the house and seventeen outside the building. The central exhaust fan machinery is in the sub-basement and removes the dust everywhere in the building through apparatus set up in the proper places. The refrigerating plant furnishes the ice, especially for tissue-cultures and for the chemical laboratory. The motor commutator in the sub-basement supplies the optical lamps with appropriate electric current. A special shop for the mechanic is also in this part of the building.

Method of Teaching

Charles University has a student body of 8,200, distributed as follows among the five faculties: medicine, 1,840; sciences, 1,350; law, 3.490; philosophy, 1,500; and theology, 40. The lectures in histology and embryology, treated as independent branches, are given only in the faculty of medicine. There are 250 to 300 students taking these subjects in each semester. The academic year is divided into two semesters of equal length, the first of which begins in October and ends February 15, while the second begins February 15 and ends June 30.

Instruction in Histology

The elementary instruction in histology is divided into several parts as follows:

1. Theoretical lectures, given daily, except on Saturday. As it is quite impossible for the professors to give all the lectures themselves, their subject-matter is restricted and the es-

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sential lectures of the professors in ordinary and in extraordinary are supplemented by lectures given by the docents and by the reading of Professor Srdínko's text-book (third edition).

2. Projections of diapositives and microscopic sections, which cover all the material of histology and microscopic anatomy necessary for the medical student.

3. Exhibition of model microscopic sections of both animal and human material, one day a week, in the lower rotunda.

4. Practical laboratory work, twice a week, in the after noon, in which the students make one hundred and twenty systematically stained microscopic sections of animal and human tissues. This work is done in the rotundas in the winter semester with animal material, and in the summer semester with human material.

5. Each student is expected to study his own microscopic sections and to prepare himself for the final examination.

Instruction in Embryology

Theoretical lectures, lasting one hour, are given twice a week. As this time is too short to give a detailed account of the material on hand, there are also additional lectures given by the professor in extraordinary and by the docent. The lecture courses are supplemented by the reading of the text-book of embryology written by Professor Srdíinko (second edition), and by systematic projections of diapositives and microscopic sections, stereoscopic diapositives, macroscopical preparations, e.g., embryology of the chick, etc.

The students usually present themselves for the final examination in histology and embryology in their fifth semester. This examination is part of the first group of theoretical examinations which constitute the first severe test, *rigorosum*, to which the future doctor of medicine is subjected. The other examinations of the first group are in medical physics, biology, chemistry, anatomy, and physiology. After passing two additional groups of examinations (the second and third *rigorosum*) the degree of doctor of medicine is conferred. The course requires five years, or ten semesters, for completion.

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Research Work

As the subjects treated are very varied, it is difficult to give briefly an account of the research work of the Institute. The work of the last few years has dealt with the connective tissues and has covered the following subjects: elastic cartilage, canals of the cartilage, soft places and cavities in the cartilage, albuminoids of the cartilage, fissures and lesions in the cartilage, chondroitic acid and its rôle in the development of cartilage, calcification of the cartilage, genesis of the cartilage, genesis of the collagenous fibers, and regressive changes in the collagenous fibers. Research work has also been done with the endocrine glands, in the following subjects: the action, histogenesis, and phylogenesis of the islets of Langerhans; regeneration of the insular tissue of the pancreas; histogenesis of the interstitial cells in the human testis; histogenesis and histology of the glomus coccygeum; interstitial cells of the mammary gland in woman, in normal rats and in those submitted to an avitaminous diet. Hematology has been another subject of research at the Institute and studies have been made of leucocytary conditions in pregnancy, methods of counting the thrombocytes and of the blood of the *Scorpaena porcus*. Other studies have been made in the functional structure of the nervus ulnaris and of the cat's paw. In addition tissue-cultures of nerve fibers in vitro, etc., have been made.

The scientific work of the department is directed by the director and his assistant, the professor in extraordinary. Not only the scientific staff of the Institute but also the hospital visitors and even advanced students take part in the scientific laboratory work.

Personnel of the Institute

The professorial staff consists of: a professor in ordinary, a professor in extraordinary, and a docent. The auxiliary scientific staff is composed of three assistants, all doctors of medicine. The routine work, especially in the student laboratories, is done by advanced students of medicine (demonstrators).

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The complete personnel of the Institute is as follows:
The director
One professor in extraordinary
Four assistants (one of whom is the private docent)
Six demonstrators
One preparator
One secretary
Three employees

A porter and a janitor are used jointly by both departments. The cleaning and scrubbing of the building is done by the employees and two charwomen.

Budget

All universities in Czechoslovakia are supported by the State. The yearly endowment of the Department of Histology and Embryoolgy of Charles University totals about 40,000 crowns. From this sum the following must be purchased: materials for all laboratory work research, class work; chemicals, photographic materials, animals, books, scientific apparatus, collections, etc. The laboratory fee paid by the students totals yearly about 10,000 crowns. Each student has to pay 20 crowns for the chemicals, stains, etc., used in the laboratories. There is no other income for the Institute. The expenses for heating, lighting, gas, water, repairs, etc., are paid directly by the State.

The personnel of the Institute is supported directly by the State.

The amount paid for the building and equipment of the Department of Histology and Embryology and the Department of Physiology was about 16,000,000 crowns.

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MEDICAL REVIEW OF REVIEWS
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"Through the medical journals have been given to the world nearly all the discoveries which the science and art of medicine owe to American physicians. They furnish the original data which are the foundations of monographs and text books, and their files remain interesting and valuable when the latter have become obsolete and are forgotten."

—JOHN S. BILLINGS, M.D.

EDITORIALS

American Medical Editors' Association

In the past, this journal has devoted considerable space to the rejuvenation of the American Medical Editors' Association, under the able leadership of Dr. H. Lyons Hunt, of New York (see issues of May, October, November, December, 1928). Since that time, the society has grown beyond expectations, is now known as the American Medical Editors' and Authors' Association, has a membership of about one thousand, and publishes a valuable periodical—*The Medical Mentor.*

As the editor was not present at the Detroit meeting, we cannot give our impressions, but we are glad to note from both the lay and medical press that the meeting was most successful and stimulating. The leading newspapers of the nation, such as the *New York Times* (issue of August 10, 1930) devoted many columns to the problems discussed by the medical editors and authors. The *Medical Herald* of Glendale, California (August), contains this report:

The Fifty-Fifth Annual Meeting of the American Medical Editors' and Authors' Association was held at the Book-Cadillac Hotel, Detroit, on June 24, under the presidency of Dr. H. Lyons Hunt, of New York. The attendance was much

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larger than that of previous years, and the entire session proved very profitable. During recent years the society has grown until it now has nearly one thousand members. Dr. Hunt was reelected president.

The one-o'clock luncheon was a very happy occasion. In the absence of Dr. Curran Pope, Dr. Hunt very aptly presided as toastmaster.

While the American Medical Association considers medical science, the editors take up medical problems. The president's address dealt with the history of the organization, which was traced back to the early sixties when the duration of the medical course was one or two years, and when Nathan Davis, Theophilus Parvin, and Horatio Wood were powerful and guiding lights. Now the waiting list of the society is so large that it has become necessary to appoint a committee on membership and a board of governors. Applications come from Canada and Europe.

The yearly dues were raised to ten dollars. The meeting-place for 1931 was not determined. The executive committee will decide whether to meet with the American Medical Association or as a separate unit. Dr. W. Gerry Morgan, President of the American Medical Association, became a member during this session.

Abstract of discussion:

Anderson, Booneville, Mississippi—In the South there is one physician to two thousand people; in the cities there is one physician to five hundred; hence the county hospital offers the best means of solving the problem of carrying medicine to the masses. The hospital should be maintained by municipal and state funds.

Baketel, Jersey City—Fee-splitting is universal and preaching against it is useless. However, no doctor should accept a case beyond his ability. Under the present system the profession is unable to maintain its integrity. Open fee inclusion by the surgeon or the specialist is the ideal solution.

Stewart, Philadelphia—Medical schools have dropped pharmacology and therapeutics from their curricula. These should

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be specialties in medicine. We must begin now to prevent the occurrence of socialism in medicine twenty years hence.

Marsh, Albany, New Lork—Articles for the public press should be prepared by a well-balanced committee of physicians, including a medical health officer.

Lake, North Chicago—The code of ethics needs interpretation rather than revision. Protection from the free clinic is needed. No doctor should participate in clinics organized by laymen. The physician's professional card should include his license number. The county society should return a certain percentage of all surgeons' and specialists' fees to the practitioner.

Dutton, Amarillo—A public health portfolio need not mean a new system—rather an administrative head to existing agencies in Washington. It will require strong public sentiment or a great man to change the present system.

Lankford, San Antonio—The cultural aspect of the manuscript must be considered even if it is poorly written. Who is a medical author? The society must discriminate or suffer degeneration. Shall we have a committee to discern, sift, and decide one's fitness?

Kilduff, Atlantic City—Hash isn't made—it just accumulates. What to do with rehashed material is one of the medical editor's great problems. It is wise to have something to say, say it, and then stop. Medicine of the future will rise phœnix-like from mistakes of the past.

Johnson, Buffalo—Be alert for the manuscript that, although verbose, contains the lost link in an important thread of research.

The paper by Dr. Achard, of Glendale, California, was on "Difficulty of Doing Satisfactory and Complete Reading for Editorial Purposes." Dr. Bloodgood, of Baltimore, prepared a paper on the cancer problem. "Coercion Imposed by Advertisers" was the subject of the paper by Professor Rusby, of Columbia University.

The editorial in the *Medical World* of Philadelphia (August), states:

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The fifty-fifth annual meeting of the American Medical Editors' and Authors' Association was held in Detroit, June 24, 1930. About two hundred editors and authors attended the convention and manifested intense interest in its work.

Dr. H. Lyons Hunt, president of the association, in his opening talk, outlined the history of the organization whose object has been since its inception the consideration and treatment of problems that have affected the medical profession aside from scientific matters. He spoke of the accomplishments of the association during the past year toward the standardization of licensing examinations and international reciprocity within the profession. He placed before the members his plan to investigate alleged cures by quacks of all the cults practicing medicine today, and what effort should be employed to exterminate publicity of their doubtful cures.

Under Dr. Hunt's plan committees will be appointed by the president of the association for the express purpose of making such investigation and freeing the public from the grip of the quacks. These committees will file their findings with a board of governors, who will sift such findings and decide upon their merit for publication in the lay and medical press. The board of governors will consist of twelve medical authors, six representatives of independent medical journals, six representatives of state medical journals and one medical publisher. The board will also endeavor, with the aid of the committees, to secure reports on all topics of keen interest to the medical profession.

Dr. W. H. Anderson, Boonerville, Miss., presented a concise report from the Committee on Hospitals. Dr. H. S. Baketel, Jersey City, N. J., read the report of the Committee on Economics. Dr. F. E. Stewart's report of the Committee on Pharmacology and Therapeutics was read by a member. Next was the report of the auditor, C. W. Brooks, New York. Then followed the report of the secretary-treasurer, E. Vandervoort, New York. The report of the Nominating Committee was then read.

Revision of the Code of Ethics proved to be a subject of keen interest, judging by the intensity of the discussion of the subject by the members after its presentation by Dr. G. B. Lake,

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North Chicago, Ill. Dr. Lake contended that entirely too few physicians are familiar with the medical code of ethics, to whom it exists as a myth and is accepted as such. He suggested changes in the existing rules regarding fee splitting, an abomination which he deplored, but which at the same time is in need of modern consideration.

Dr. Anthony Bassler, New York, read a brief essay titled "Medical Officer in the Cabinet." In stressing the matter Dr. Bassler declared that while great care is manifested by the federal government in the prevention and cure of diseases of animals, especially cattle, the diseases of mankind are left to the goodwill of the medical profession or to the state and municipal agencies. As a result of this there is much duplication and inco-ordination. Irregular types of organizations and practitioners abound. He asserted that we have with us the so-called blue light artists, the spine twisters and the Holy Bible exhorters. Consequently a medical officer in the cabinet of the president of the United States is a promise that has been contained in nearly every presidential platform since the days of Grover Cleveland, Dr. Bassler affirmed. He said that if the health of the nation is one of its greatest assets, and the medical profession has the national health in trust, there should be professional cabinet representation.

Dr. J. S. Lankford, San Antonio, Texas, read a brief but very interesting and comprehensive article on "The Co-operation of Medical Editors and Authors."

During the luncheon hour Dr. Hunt presided and Harvey Campbell, vice-president and secretary of the Detroit Board of Commerce, gave the principal address.

The afternoon program consisted of the Annual Report of the President; "What Can be Done About Rehashed Material," by Dr. R. A. Kilduffe, Atlantic City, N. J.; "A Clearing House for Trite Papers," by Dr. W. F. Dutton, Amarillo, Texas; "How Should a Medical Editor Judge the Merits of What a Medical Author Writes?" by Dr. H. M. Johnson, Buffalo, N. Y.

With regard to a department of health headed by a medical secretary in the president's cabinet, Dr. Hunt said that such a bill has been drawn and is to be introduced by Senator

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Couzens, of Michigan. With regard to this question the editor of the *Detroit Free Press* affirms that an individual finds it difficult to believe that the medical profession would gain by having a representative in the president's cabinet. Indeed, the guarding of the nation's health is an important trust, which the medical profession is nobly discharging. A doctor in the cabinet could hardly do more in that direction than is being done now, so the editor declares. He says further that what professional representation in the cabinet might easily do to the medical profession is to inject politics into it, with anything but happy results. And all the professions, teaching, preaching, and so forth, may be the next to demand cabinet positions. These professions are so remote from the proper functions of the federal government, he asserts, that they have more to lose than gain by officializing them. The trend toward state medicine is pronounced enough without the encouragement that would be given it by a secretary of health in Washington.

Thus again we physicians are apprized of a danger to the prestige and emoluments of our noble profession. We must admit that every time we place power in either state or federal officers, which should alone remain our own, we are lessening our own standing and our profession. It is right that every physician should try his utmost to develop the agencies of prevention of disease. But such processes of prevention should remain within the realm of legitimate medical practice rather than in state or federal officers. May we be saved from the slavish status of foreign doctors!

These different points of view are necessary before the problem is solved. The MEDICAL REVIEW OF REVIEWS feels that the American Medical Editors' and Authors' Association, with Hunt at the helm, will not permit American medicine to go to sleep. Best wishes!

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Curious Cures

A simple little treatment like a stroke of lightning may make the deaf hear, cure paralysis or anemia, or cut off a lame leg neatly at just the right place to fit on a wooden or cork one.

But it is so tantalizing—doctors can not prescribe thunderbolts.

That is the regret of Dr. Robert T. Morris, who writes on this entertaining topic in *The Medical Review of Reviews* (New York). Curious cures are of many kinds, he says. Some may be simply unexpected results of unusual treatment; others are peculiar effects of treatment on a basis that is quite understandable; still others are due to healers who represent speculative propaganda. Writes Dr. Morris:

"Concerning the first group of cures—unexpected results of unusual treatment—we may note a number of results following lightning-stroke. A good many persons have been struck by lightning, and those who were not killed have shown peculiar after-effects—some of them being curative of illness. Tilesius records a case of a deaf man struck by lightning, whose hearing returned immediately afterward.

"A man in Carteret County, North Carolina, with paralysis of facial muscles, and unable to close his eyelids, was cured by a stroke of lightning.

"In the Sycyando case, of Cracow, a young man who had a painful stiff right knee was riding in a wagon which was struck by lightning, and the leg was cut off at just the right place to allow him to wear a false leg, subsequently. The leg was found at the roadside, a few days later.

"Le Conte describes a case of a Negress suffering from anemia, apparently of the pernicious and sometimes incurable type, who promptly returned to a normal condition of health after being struck by lightning.

"This same author refers to an elderly woman, decrepit as a result of years, who returned to a peculiarly normal condition of young womanhood, following a lightning stroke. I know of some who would take that chance.

"An ambulance-surgeon told me of a hurry-call to a case of kink in the bowel, which, doctors all know, represents an extremely serious condition with impending disaster. On the way to the hospital, the bumping of the ambulance unkinked

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the bowel, the patient was cured, and walked back to her home the same day.

"Unfortunately, none of these kinds of cure may be prescribed by us physicians in regular practice. We would like to know of treatment that would take hold like lightning.

"In our second group, we have peculiar effects of treatment on a basis that is understandable. For example, we find, sometimes, that when a proper adjustment of glasses has been made for a patient suffering from eye-strain, a chronic dyspepsia is promptly cured.

"Cocain or nitrate of silver, having the effect of desensitizing a certain tiny spot in the nose, will sometimes completely cure certain disturbances of function belonging to women.

"A child whose lungs have been examined repeatedly in a search for an explanation for persistent cough, may be instantly cured when the doctor finds that the child has pushed a bean into its ear—the bean then being removed.

"A rheumatism involving the knee-joints may promptly disappear upon discovery and treatment of an infected tooth-root, and no end of mysterious illnesses disappear upon removal of infected tonsils.

"A number of forms of insanity become cleared up when proper attention is given to treatment of some of the 'closed glands,' as they are called—the thyroid gland, for example.

"Somebody who was deaf discovered that hearing had been temporarily regained after a rapid descent in an airplane accident, and for a while a great many other persons then subjected themselves to this dangerous and expensive treatment, until it was found that the same rapid change in pressure might be accomplished in simpler ways by ear-specialists."

The third group—the so-called cures conducted by healers—Dr. Morris believes to be based upon "capitalization of optimism." The pessimist with the same ills must remain uncured, he says, as a penalty for an ungracious attitude. "What is known as 'a state of mind' will account for so many illnesses that a change may bring about a cure. We must except, of course, actual organic diseases and infections, but even these may be distinctly benefited at times."—*The Literary Digest*, August 2, 1930.

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Politics and the University of Mississippi

From *School and Society*, July 19, 1930.

The following members of the University of Mississippi have been removed or demoted without warning and it is said without cause other than failure to zealously support the present political faction now in power. Because of the lateness of this action, the majority are seeking suitable positions for next year and will greatly appreciate any information leading to this end.

Alfred Hume, C.E., D.Sc. (Vanderbilt), LL.D., chancellor.

Alexander Lee Bondurant, A.B., A.M. (Harvard), Litt. D., LL.D., dean of the Graduate School, professor of Latin language and literature.

Peter Whitman Rowland, M.D. (Memphis Hospital Medical College), professor of pharmacology.

David Horace Bishop, A.M. (Vanderbilt), Litt.D., professor of English language and literature.

John Hazard Dorroh, B.E., C.E. (Vanderbilt), dean of School of Engineering, professor of civil engineering.

Winn David Hedleston, A.B. (Mississippi), D.D., professor of philosophy and ethics.

John Nesbit Swan, A.B., A.M., Ph.D. (the Johns Hopkins), professor of chemistry.

Joseph Otterbein Crider, M.D. (Virginia), dean of the School of Medicine, professor of physiology.

Thomas Charles Kimbrough, Ph.B., LL.B. (Millsaps College), dean of the School of Law, professor of law.

William Hemingway, Ph.B. (Mississippi), professor of law.

Lloyd Evans Thatcher, A.B. (Missouri), professor of biology and embryology.

Edna Lowe Eatman, A.B., A.M. (Mississippi), dean of women, professor of home economics.

Charles Newman Wunder, A.B., A.M., Ph.D. (Virginia), professor of mathematics, dean of men.

Robert Torrey, Ph.B. (Mississippi), associate professor of mathematics.

Leonard DeLong Wallace, A.B. (Kentucky), associate professor of English.

Kenneth Paul Vinsel, A.B., A.M. (Mississippi), associate professor of political science and economics.

Edward McCrady, Th.G. (University of the South), D.D., associate professor of philosophy.

Robert Joseph Farley, A.B., LL.B. (Mississippi), assistant professor of law.

Ralph Early Grim, Ph.B. (Yale), assistant professor of geology.

Paul Klein Rees, A.B., A.M. (Texas), assistant professor of mathematics.

George Edmund Tomlinson, A.B., B.E., A.M. (Mississippi), assistant professor of civil engineering.

Carl Hamilton Pegg, A.B., A.M., Ph.D. (North Carolina), acting assistant professor of history.

John Thatcher Atkin, A.B., M.A. (Southwestern), instructor in mathematics.

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Albert Alan Rogers, A.B., A.M. (Alabama), acting instructor in English.

In regard to this situation a correspondent writes:

Within the last few days just one third of the faculty of the University of Mississippi were dismissed or demoted. Six of the ten deans of the university lost their positions as deans, four of them being dismissed from the university. Most of the office and campus employees were also dismissed.

No attention seems to have been paid to age, experience or qualifications either in the case of those dismissed or those appointed to positions. The oldest man concerned was one of the new appointees, the best prepared men were among those dismissed, and some appointed to positions are without experience. "To the victors belong the spoils" is the slogan. Any one who had not taken an active part in favor of the political faction in power was likely to have his position in jeopardy, providing some one wanted the place who had been active.

The faculty had been entirely harmonious and without divisions; no one knew whether or not he was on the "black list." Chancellor Alfred Hume, who was the first one dismissed, is a magnificent man and has shown himself a most capable head of the institution. All the faculty supported him in his work including all those dismissed, and these had much to do with the growth of the university in recent years. None of those dismissed had taken part in factional politics, except one or two.

The governor, who is primarily responsible for this disturbance, seems to think it a good joke to be able to toss about at his will highly trained and efficient educators. It must be said for all of those who have brought about this upheaval that they are unfamiliar with educational work and are accustomed to thinking in terms of political factions.

The following editorial is from a leading newspaper of the state, the *Jackson Daily News* of June 29, 1930:

The faculty of the University of Mississippi was not revised at the meeting of the general board of trustees of Mississippi's higher institutions of learning at the session here Friday. It was ravished. Criminally assaulted without reason, justification or excuse.

Professors who have given the best years of their lives to the training of the youth of Mississippi, men eminent in the world of education, were summarily dismissed to make way for administration favorites. In a number of instances the successors chosen are without experience or qualification for the work they will undertake at the next scholastic term. Men of scholarly attainments, grown old in the service but still highly efficient are ruthlessly booted out to make way for others whose only claim to recognition is that they need jobs, or better jobs than they have thus far shown ability to fill.

The University of Mississippi has been well-nigh slaughtered to make a Roman holiday and when the new chancellor takes charge he will face a task that few men would dare assume.

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The September Contributors

FORTUNATO ANTHONY DIASIO writes on *Problems in Dermatology.* This first installment, devoted to psoriasis, will be followed by Dr. Diasio's discussion of generalized neurodermatitis. These clinical lectures are from the department of dermatology of Lincoln Hospital. With this issue, Dr. Diasio becomes Dermatology Editor of Medical Review of Reviews.

MORRIS HIRSCH KAHN writes on *Some Industrial Effects Upon the Heart.* Dr. Kahn has been a frequent contributor to these pages, and to leading scientific periodicals, such as American Journal of Medical Sciences, and the Archives of Internal Medicine. In 1920, the W. F. Prior Company published his book on Functional Diagnosis, written in collaboration with Drs. Max Kahn and Jacob Rosenbloom. His monograph, Historical Survey of our Knowledge of Bronchial Asthma, was read before the American Society of Medical History and constituted the Bronchial Asthma Number of Medical Life (March 1928).

MARY MCKIBBIN-HARPER writes on *A Medical Woman Looks at Leprosy.* Our readers will recall, with interest and pleasure, her former "looks" which appeared in these pages: A Medical Woman Looks at Mother India (September 1929) and A Medical Woman Looks at China (November 1929). In connection with the present contribution, Dr. McKibbin-Harper states: "It seems to be the concensus of opinion among neurologists that there is no evidence that leprosy involves the nervous system specifically; but that the psychoses often found may in many cases be induced by the thought of being a leper—an outcast from society."

ROBERT TUTTLE MORRIS contributed *Curious Cures* to a former issue of this journal (October 1929). This had been broadcasted under the auspices of the Gorgas Memorial. Through his books, clinical work and teaching at the New York Post-Graduate Medical School and Hospital as Professor of Surgery (since 1898), he has long been known as one of our leading surgical philosophers. There is an appreciative reference in the latest edition of Fielding H. Garrison's History of Medicine (page 601). In this issue we reprint the Literary Digest's abstract (August 2, 1930) from the article in the Medical Review of Reviews.

EARL M. TARR writes on *The Treatment of Pertussis.* His paper was read before the annual meeting of the Rhi Chi Medical Fraternity. Everything in contemporary medicine seems to be a question of diet, and we rejoice to find one physician who refuses to make a fetich of diet. Rational dietotherapy is one of the pillars on which modern medicine stands, but let us beware of making it the entire structure. Dr. Tarr is associate professor of pediatrics in the College of Medical Evangelists of Los Angeles, California.

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Elihu Hubbard Smith: First American Medical Editor

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MEDICAL REVIEW of REVIEWS

Foundation of Journal: The Medical Review of Reviews was founded in 1895 by Daniel Lewis, M.D., M.A., Ph.D., LL.D., Professor of Surgery, New York Postgraduate Medical School and Hospital; Commissioner of Health, State of New York (1892-1904); President, New York County Medical Society (1884-86) and Medical Society of the State of New York (1889); Vice-President, New York Academy of Medicine (1896). The Medical Review of Reviews was the first medical journal in America to devote itself to abstracts and to publish a monthly Index Medicus. These features became unnecessary and were eliminated when numerous periodicals added abstract departments and the American Medical Association began the publication of the comprehensive Quarterly Cumulative Index Medicus. The Medical Review of Reviews is now devoted to original contributions on general medicine and public health.

Amalgamation of Journals: During its career, the Medical Review of Reviews has absorbed these five journals: Southern Medicine, Therapeutic Medicine, Journal of Pediatrics (founded 1895 by Dr. Dillon Brown), Buffalo Medical Journal (founded 1845 by Dr. Austin Flint), and Archives of Therapeutics.

Medical Sociology: The Medical Review of Reviews, one of the first journals to recognize the relationship of medicine to social problems, produced Eugene Brieux's Damaged Goods, Frank Wedekind's The Awakening of Spring, Gerhart Hauptmann's The Weavers, and various other social dramas and films. This phase of the journal's activity was under the direction of its publisher and managing editor, Frederic Hugo Robinson (1890-1923).

Contributors: The many distinguished physicians and surgeons of the past who have contributed to the Medical Review of Reviews include: Abraham Jacobi (1830-1919), Daniel Bennett St. John Roosa (1838-1908), George Ryerson Fowler (1848-1906), Roswell Park (1852-1914), Byron Robinson (1854-1910), John Veitch Shoemaker (1858-1910), Heinrich Stern (1868-1918), and Sir James Mackenzie (1853-1925).

Exclusive Publication: Manuscripts are considered for publication upon condition that they are contributed to this journal exclusively.

Manuscripts: Manuscripts should be typewritten, double-spaced, with ample margin, mailed flat; the ORIGINAL is to be sent and the author should preserve the CARBON. Authors should read their manuscripts carefully before submitting them for publication. Unsolicited manuscripts should invariably be accompanied by return postage.

Publications: Notable contributions to these pages include, among many others, Sir James Mackenzie's Cardiac Signs; J. F. McClendon's Hydrogen Ion Concentration in Physiology and Medicine; Victor Robinson's Landmarks in Pharmacology, Autobiography of the Tubercle Bacillus, Medicine under King Mike, and American Medical Biography; various essays by Havelock Ellis; Mary Ware Dennett's Sex Side of Life; and James P. Warbasse's protest against the military conscription of youth. I. L. Nascher, the founder of geriatrics in America, established in this magazine the first department devoted to diseases of the aged. Among the books bearing the imprint of Medical Review of Reviews are the first editions of Victor Robinson's Pathfinders in Medicine, and Essay on Hasheesh; and Christabel Pankhurst's Plain Facts about a Great Evil. The journal has published various symposia, and also special numbers, including the Psychopathology Number which was prefaced by Sigmund Freud.

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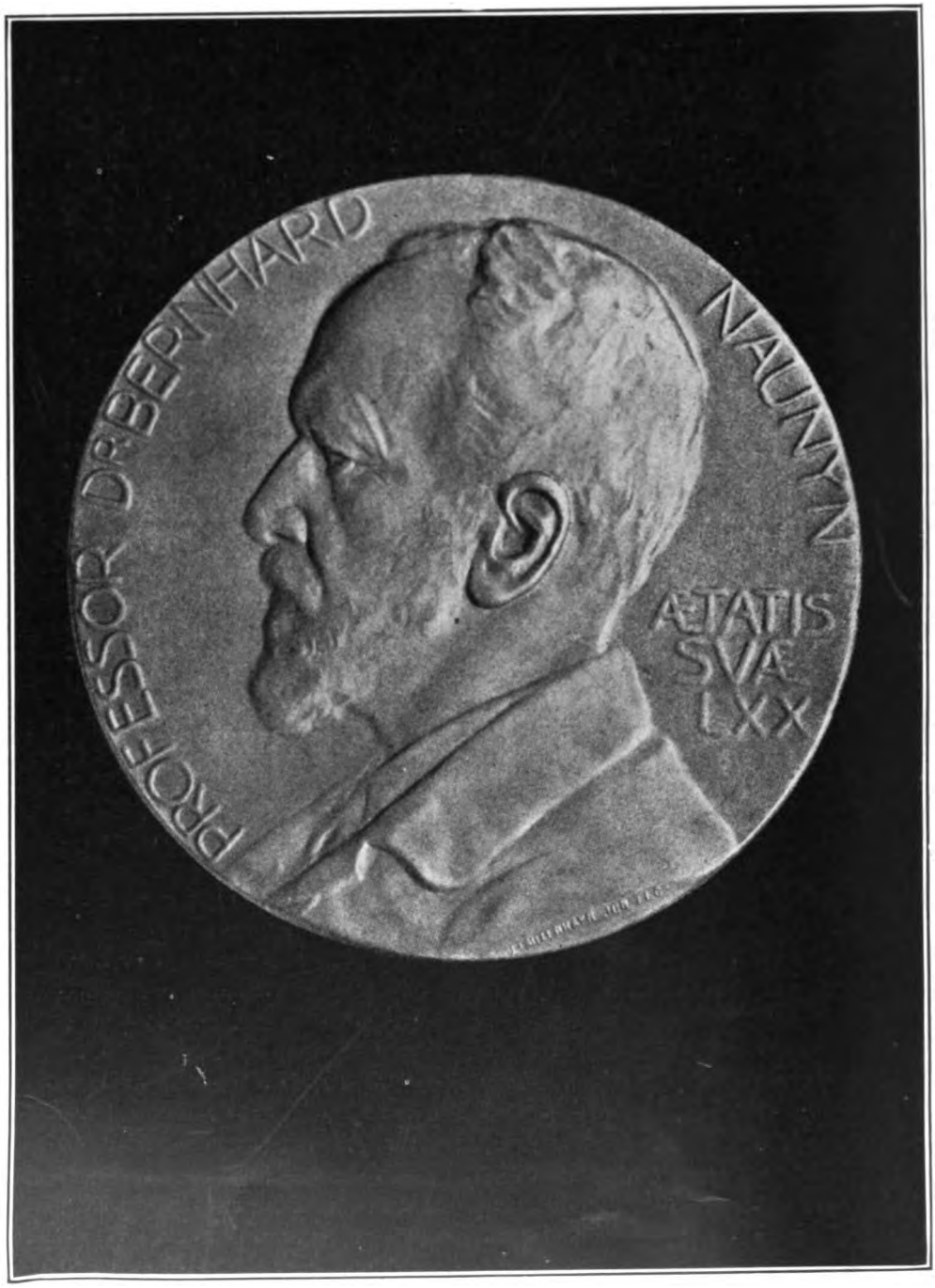

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A Superficial Dorsal Reflex in Chorea

By G. Arbour Stephens, M.D.

During the course of a recent investigation which I have been making in connection with chorea in children, my attention has been directed to a very interesting superficial reflex over the dorsal and lumbar areas.

The first patient in whom I found it had an oval patch of a bright red color, about six inches long, over the region of the right hip joint. The edges of this patch were so well defined that I thought it was possibly a trophic lesion, until further investigation satisfied me that it was merely due to pressure when lying on the bed. Over the whole of this red patch there was marked hypersensitiveness, but the hypersensitiveness was not limited to this area. Along both sides of the spinal column from the third dorsal spine downwards there was hypersentiveness, covering the area supplied by the 3—12 dorsal nerves, the lumbar nerves and the 1st and 2nd sacral nerves. In addition to this hypersensitiveness I found that the muscles of this area, the trapezius, latisimus dorsi and the gluteus gave evidence of a superficial reflex contraction when the skin was picked.

This reflex is present in nearly every child suffering from chorea, and it does not seem to be associated with any heart disturbance because it occurs in those cases whose hearts are not affected as well as in those patients whose heart are dis-

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ordered whilst it is not present in ordinary cases of acute rheumatism.

Another fact of importance which I have discovered in connection with chorea is that the Basic Blood Pressure (B.B.P.) is raised in many of the children suffering from this disease. The B.B.P. is that pressure under which the blood exists in the brachial artery below the inflated armlet of the sphygmomanometer when the systolic pressure is being estimated. The artery below the armlet is full of blood which exists under a definite pressure and the systolic pressure is additional to it. This is the basic pressure under which the blood exists all the time, whilst the systolic is only applied at each stroke of the heart. The higher systolic pressure being intermittent has less effect on the blood and its living corpuscles than the permanent or basic pressure which is constant.

Associated with the B.B.P. is another important factor, namely the surface tension which varies with it and effects the life and metabolic activities of the corpuscles. As stated by me in Vol. xlvii Trans. Med. Soc. on the results of experiments, the surface tension is affected by disease, e.g. the surface tension of normal horse serum is 40.75 dynes per cm whilst the surface tension of antitoxin serum is 37.34 dynes per cm or a difference of 3.4 dynes per cm as the result of the introduction of a toxin.

A poison introduced into the system raises the B.B.P., a fact that can be tested by any medical man who estimates the B.B.P. of a man both before and after taking a stiff glass of whiskey.

The B.B.P. of a normally healthy child is about 50 mm.Hg., but in children suffering from chorea at its early stages the B.B.P. is about 70 mm.Hg. Evidently this rise is due to the presence of a toxin in the blood, and this rise accompanied as it is with an alteration of the surface tension, as well as of the metabolic movements of the corpuscles has a disturbing effect on the general system of the child.

One important result of the raising of the B.B.P. is that the entrance of blood into the vasa vasorum is obstructed, the obstruction increasing with the pressure, because the mouths of the vasa vasorum are more and more compressed. One result of this obstruction is that the blood is not able to supply

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properly the muscular fibres of the arterial walls, but when we remember that the blood itself is affected we can appreciate the fact that the nourishment of the arterial walls is seriously disturbed. Badly nourished muscular fibres contract badly, become sluggish and react to nervous stimuli in a refractory manner, with the result that the parts supplied by the arteries have their nourishment also seriously affected. With this fact before us we can easily understand how the coronary arteries are unable to supply the muscles of the heart in a satisfactory manner and as a consequence the contractions of the heart become disturbed.

Let it be noted that the B.B.P. is estimated at the brachial artery, but the B.B.P. varies for each artery of the body, and in the coronary arteries the pressure in them, owing to the powerful contractions of the heart, must be the highest in the whole body. This additional fact helps us to realize why the heart is so liable to disturbance in chorea, owing to the raising of the B.B.P.

In connection with the cranial circulation, we can understand how the raising of the B.B.P. interferes in a similar way with the nourishment of the brain, which as a consequence is irregular in its control of the afferent impulses.

Whether this dorsal superficial reflex to which I am drawing attention is associated with a disturbance of the sympathetic system is a point worthy of serious consideration, especially as in many cases of chorea the pupils are dilated.

Bearing on the importance of this raised B.B.P. I think is the interesting fact which I have come across, namely that the B.B.P. is raised in patients suffering from Raynaud's Disease. In the case of a woman aged 42 suffering from this disease, the hands and nose were affected, whilst her general health was so disturbed as to prevent her from working sufficiently hard in order to keep warm. The systolic b.p. was 240 and her B.B.P. was 120, and as a consequence the circulation in the vasa vasorum was so poor as to give rise to a very ill-nourished state of the arterial walls. Under such circumstances all stimuli were responded to in a sluggish manner, and the circulation was unable to accommodate itself so as to allow of the proper heat-

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ing of the parts supplied. These findings of mine are increased in value as a result of the good work done by Sir Thomas Lewis and Professor Kerr on Raynaud's Disease. They have drawn attention to the fact that *undue cooling* of the hand failed to bring on an "attack" because as they point out, "the minute vessels of the skin of these patients react as do those of normal skin to excessive cold, by dilating."

What really happens is this: in Raynaud's Disease the badly nourished arteries are sluggish, and respond to ordinary stimuli in a poor manner, but excessive cold is, however, sufficiently stimulating to make even these sluggish ill-nourished arterial muscular fibres respond and as Lewis and Kerr say "The occurence of a full cyanotic tint is not observed." Their observations have driven them to the same conclusion as myself, namely that there is an abnormality of the vessel wall and also that the closure is not reflex. They therefore confirm my conclusion arrived through my work on the B.B.P. and indirectly they also confirm my work on the B.B.P. itself.

I differ from Lewis and Kerr when they apply the word "spasm" to the state of the vessel in Raynaud's Disease, because it suggests hyper-contractability of the muscular fibres of the arterial wall. Such a hyper-contractability is not what one would find in a badly nourished, but rather a sluggishness of its movements.

As I pointed out in The Practitioner for May, 1929, "To suggest that the diseased muscular fibres of the auricle are capable of developing fresh centres of excitation seems to be contrary to the usual rule regarding dying matter, whereas on the other hand, the diseased muscular fibres forming the thin wall of the auricle are so toneless as to lend themselves to be thrown *passively* into a state of tremor."

In several cases of patients who have over-indulged in alcohol, we find cold bluish hands and a nose with an impoverished circulation, whilst the B.B.P. is raised. Symptoms such as these are similar to those in Raynaud's Disease, and help to throw light on the state of things which are present in chorea.

Since the time when I published my book (1921) "The Prevention and Relief of Heart Disease" I have pointed out in

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season and out of season, that chorea and acute rheumatism occur only in one type of child, name that child which does not partake of lime-bearing food such as milk, whilst at the same time aggravating that lack of a partiality for the acids—vinegar, pickles, lemons. These are the children who are liable to urticaria, and local inflammatory disturbances which we associate with a disturbed calcium metabolism. Children of this sort are readily attacked by insects of all sorts and so have injected into them toxins of various kinds, which no doubt exercise a cumulative effect.

These children are readily recognized by their inflamed puffy or bleeding gums, their raw cracked tongues, pallor, diminished energy, lack of interest, enlarged tonsils and a *habit of biting their nails.* This nail-biting habit is in my opinion an early or prodromal stage of chorea, and I found it present in 800 school children out of 8,000 who were examined.

During childhood the calcium metabolism is especially important as it is during this period that the teeth are erupted, and the bones form and grow. For the growth of teeth and bones the presence of lime is an absolute necessity and with a minimum supply to the system it is evident that oftentimes a point of much precariousness is reached. Such precariousness is evidence by the readiness with which the B.B.P. is upset in these children, and in cases which I have examined before the actual attack of acute rheumatic pains the B.B.P. has been raised, but as soon as the temperature has fallen the B.B.P. returns towards normal. It seems as if the explosive material had been collecting but once it has been exploded the B.B.P. comes down.

This work of mine in connection with the calcium metabolism of children suffering from chorea and acute rheumatism seems to receive ample corroboration in the last Report of the Marylebone Rheumatism Centre. In it we read "The most common abnormality of chemical constitution of the 'rheumatic soil' is faulty metabolism of calcium, phosphorus, magnesium and sulphur." When we remember that calcium constitutes over 50 per cent of the whole body, it follows that a faulty

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metabolism of such a huge proportion of the body must indeed be serious.

This Report also states "The second group (of children) shows a deviation of the acid base equilibrium to the acid side and so far there has been no exception to the rule that cases of cardiac rheumatism fall into this latter class."

In connection with all these cases of disease associated with a lack of calcium it is interesting to note that the calcium content of the blood is apparently not much disturbed, owing to the fact that the blood is kept up to normal at the expense of the bones which may become fragile. Personally I am inclined to think that although the amount of blood calcium may appear to be nearly normal, that calcium is not satisfactory on account of a variation of the H ion.

Medal struck as a compliment to Commodus during the early part of his reign by the cities of Pergamum and Ephesus. On the obverse is a life-like portrait of the Emperor at the age of about twenty-four; on the reverse two men holding statuettes evidently representing Pergamum and Ephesus, since the two cities are designated below.

On account of the world-wide fame of the shrine of Aesculapius at Pergamum, the city was frequently represented on medals by a figure of the god. In this case, the representative of Pergamum is a man about the age of fifty to sixty with the mantle of Aesculapius about him, a statuette of the god in his right hand and his baton in the left. He has a sort of turban on his head, usually put on images of physicians to indicate their calling.

In other words, instead of Aesculapius himself we have a follower, and it is scarcely to be doubted a distinguished follower. The most illustrious medical man ever produced by Pergamum was Galen, and he was at the time physician to Commodus and between fifty and sixty years of age.

To add to the likelihood, Fabretti and Bonarotti were convinced that this identification is correct on account of the similarity of the features in this miniature to the well-known, but time damaged picture of Galen on the manuscript of Dioscorides coming from the year 487 A.D. If this is true, and I am quite persuaded, it is the only perfect representation of the great Pergamite that has come down to us. [J. Walsh: Second Galen Number of Medical Life].

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Athletics and the Heart

By Louis Faugeres Bishop, M.D. and
Louis Faugeres Bishop, Jr., M.D.

Athletics and athletic sports have a most interesting history. Probably recreational athletics preceded the dawn of civilization. Primitive man, no doubt, instinctively realized their benefits in the struggle for existence. Funeral games at the siege of Troy were described. Sports in Sparta were encouraged for their military value on account of the location of the country. In Athens, during the "Golden Age," they existed for the enrichment of life. In Rome, as recently mentioned by President Lowell, the contests were spectacular and promoted for the entertainment of the populace. During the Dark ages, however, all pastimes were sublimated to the salvation of the soul. Theology and War were the only sciences. After the Napoleonic conquest, physical education in Germany was for military purposes, and so continued until quite recently. In recent years, under Nordic leadership, we have witnessed world-wide interest in athletic contests, e.g., the Olympic Meets, Davis Cup Tennis Matches, and international competition in polo, rowing and other forms of sport. The cry of over-emphasis is a significant indication of their popularity in our universities and with the general public.

A very good classification of athletics, as they concern the circulation is given by Hirschfelder. He classifies athletics which involve speed, endurance and strain as follows: *Speed*—Sprints, Hurdles, Broad Jumping. *Endurance*—Long distance running, American football. The point at which an exercise of speed becomes converted into an exercise of endurance is more or less relative and depends chiefly upon the condition and the training of the individual. *Strain*—as in Wrestling, Weight lifting, Boxing. It is easy for us to see that various types of athletic sports often combine these different groups, as, for instance, a man playing football or hockey would be subject to both endurance and speed, and possibly strain as well. Also various types will produce different physiological

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effects. As an example of this, exercises of strain cause a far greater rise in blood pressure than do exercises of speed; and, on the other hand the pulse rate does not rise rapidly but is at first either slowed or unchanged.

The general beneficial effects of sports on the human organism are well-known and include an increased pump action of the heart, with assistance to blood and lymph flow; enlarged lung capacity; improved tone of the central nervous system; stimulation of all vital organs and general metabolic activities; psychic diversion, and probably higher resistance to bacterial and toxic invasion.

What we are particularly concerned with, however, are the more specific facts pertaining to the heart and athletics. The immediate physiological effects of exercise on the heart and circulation are also well-known and include an increased pulse rate. The heart rate increases immediately after exercise has begun and continues to increase progressively from ten to twenty minutes and then becomes constant. As exercise continues a secondary gradual rise in rate follows. Bowen has shown that, contrary to expectation, systole is slightly lengthened during the early increase in heart rate, the quickening of the heart being entirely produced by shortening of diastole, and that only during the secondary increase does the systole actually shorten. In ormal individuals there is a rapid rise of systolic pressure at the very beginning of exercise, which is followed by a more gradual increase to within twenty to twenty-five minutes. The diastolic pressure also rises, but not quite as much as the systolic. The pulse also increases, as well as arterial and venous blood pressure and an increased systolic output of blood. The increased systolic discharge may depend to some extent on the tonus of the heart muscle. The word "tonus," in the physiological sense, a sort of sustained partial contraction tissue by virtue of which the muscle fibres resist stretching more than they would by virtue of the inherent elasticity alone. Immediately after the cessation of exercise the blood pressure falls quickly but not so rapidly as the primary fall in pulse rate.

In many cases the blood pressure declines to subnormal

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levels, followed by a secondary rise. The x-ray has added recently another observation to the immediate effect of exercise, as has been shown by Zuntz and Nicolai of Berlin. They have made these observations by means of a stationery ergometer directly on the human subject during the period of exercise. During exercise the heart becomes slightly enlarged; immediately thereafter it is suddenly decreased in size below normal.

From the latter fact the German physiologists conclude that ordinarily the heart contains a small undischarged residue of blood which is expelled under the conditions immediately succeeding the cessation of work. If this interpretation of the temporary diminution of heart volume following vigorous exercise is correct, the residual blood remaining in the ventricles after a normal systole may be looked on as a reserve supply to meet any emergency call which may suddenly arise due to the fall in blood pressure below normal that follows exercise. We can see that under these conditions systolic efficiency would permit a more complete discharge from the ventricle in the face of decreased peripheral resistance. Perhaps this phenomenon is one of the almost innumerable "factors of safety" which have come to light with the more recent studies on the physiology of the heart and circulation.

Wiggers has also called attention to the fact that the ventricle does not utilize all its available energy during any ordinary contraction but that a factor of safety exists which is commonly referred to as its reserve power. In this paper we do not wish to discuss all the details of the physiology of this reserve or safety factor but merely to emphasize that it is probably far greater than had been formerly supposed. Many authors have also called attention to this. R. Tait McKenzie has gone as far as to say that he has never seen a sound heart fail to recover rapidly from muscular strain after severe exertion, and Sir Clifford Allbutt tells us that a young athlete is incapable, by voluntary effort, to permanently damage a sound heart and that the athlete will fall exhausted or give up the effort long before the danger point is reached.

What then, in the light of more recent investigation, are the prolonged effects of athletics on the heart and circulation,

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and does the heart hypertrophy from athletics? Deutsch and Kauf have found cardiac enlargement in the athletic sports where strain is greatest: weight lifting, skiing, wrestling, rowing. Less frequently has it been observed in boxing, football (soccer), and fencing. Intermediary between these groups may be classed, swimming, hiking, hockey, track athletics, etc. They express the opinion that the heart changes can be the result only of dilatation, emphasizing the fluctuations in the size of the heart as determined by the x-ray, and the absence of the heaving impulse at the apex, which would exclude hypertrophy. They disregard the clinical findings of functional murmurs, split sounds and arrhythmia, as well as the objective sensations of the athlete, placing sole reliance on the x-ray findings. An interesting point in their investigation is the fact of familial predisposition to cardiac enlargement in athletic sports. This should be helpful to the family doctor called upon to render a decision permitting or forbidding athletic competition in the case of an adolescent enthusiast. They summarize their study in obligatory inspection and careful medical control.

Gordon and Baker observed about two hundred contestants before, during and after a transcontinental foot race in 1928. They found fifty per cent of the entrants physically undeveloped. A majority showed decreased heart rate (50-65). The chief cause of withdrawal from the competition was pain and stiffness in the limbs as the race progressed, boils, nausea and respiratory infection. At the termination of the race the heart appeared to be definitely smaller in thirteen. There were only seven withdrawals due to exhaustion, and these appeared to be due to lack of training before entering the race.

Investigators at the annual Boston Marathon since 1923 have found no case of dilatation of the heart—in fact, decrease in size has been more frequently observed following the race.

Cabot, in *Facts on the Heart* believes that the athletic heart is a "myth" and that there is no such thing as hypertrophy resulting from inordinate physical exercise, such as sport or incident to occupation, but that the so-called "work" hypertrophy is always due to the greater demands made on the heart muscle to overcome peripheral resistance or chronic cardiac

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valvular disease. This question has not yet been entirely answered and there is still considerable divergence of opinion.

These studies of the immediate effects of excessive exercise on the heart again show us the fact that the normal heart is well able to stand athletics, even of a severe nature, and that part of the reason for this is the reserve factor which we have already mentioned.

In considering the question of a possible large heart due to athletics, we also must take into consideration the fact that most men indulging in athletics are, necessarily, of a rather strong muscular type, and the size of their hearts would correspond in some degree to the individual.

Another question that has not been answered and in which there is room for further investigation is the question of whether athletes show any more tendency in later life to degenerative heart disease than individuals who have not indulged in athletics.

It cannot be too strongly emphasized that men who intend to go in for athletic sports should be subjected to the most careful cardiac study, as well as careful medical control, before being allowed to participate. An especially interesting point in this connection, which has recently been emphasized, is the fact of familial predisposition to degenerative heart disease. This should be a helpful factor in determining the individuals who should be allowed to participate in athletics, and more attention should be paid to degenerative cardiovascular disease than has been in the past.

We are all familiar with the application of various forms of exercise in the treatment of cardiac patients (mostly rheumatic) at convalescent camps, the good results obtained and the careful supervision required. Exercise, or mild athletics, is of special value in the management of the patient who is suffering with arteriosclerotic heart disease (with or without hypertension), where there is mild cardiac failure referable to a muscle which is flabby and low in tone. The physician formulates his opinion upon evidence obtained through an accurate history, complete physical examination, laboratory reports, x-ray and electrocardiographic disclosures, and, if he chooses, functional tests of myocardial efficiency. He must carefully observe response to effort, reactions to emotional strain, and

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through all evidence available (however insufficient it may be at present), form an estimate of the functioning power of the myocardium and of the coronary circulation. Most important is a thorough understanding of the patient's temperament and his reactions to personal contact with his medical advisor. Hearty co-operation is requisite. Fortunately, the combination of effort syndrome and degenerative heart disease is unusual, but there may be times when phobias and inertia require vigorous psychotherapy.

In determining the variety of exercise one must be guided by each individual case and preference. It should not be carried beyond the point of mild fatigue and must be properly graded in degree to the condition of the patient. Active exercise too soon after meals, and sudden and violent effort, prompted by a spirit of competition, are harmful. Selection and dosage of exercise afford a fertile field for the application of the "Art of Medicine." Due regard should be paid to the importance of clothing and the climatic conditions under which the exercise is taken. We are well aware of the gravity of an acute respiratory infection in patients of this group.

There are certain contraindications which include, definite coronary disease; established congestive failure; cyanosis; inordinate dyspnoea; serious disturbance in the heart mechanism; pronounced anemia; and general muscular weakness.

From this very brief study of Athletics and the Heart we have made the following conclusions:

1. Absolute control and strict supervision of athletes by competent physicians is of great importance; whereas, a normal heart is well able to stand ordinary athletics the pathological heart is entirely a different problem.

2. Reserve factors whereby the cardiac mechanism is able to withstand the stresses and strains of athletics is probably far greater than has been hitherto realized. This reserve mechanism can be influenced to some degree by training.

3. So-called athletic hypertrophy, if it occurs at all, is a rarity.

4. Athletics have a very definite value in the treatment of certain types of cardiovascular disease. Avoidance of competition here is of great importance.

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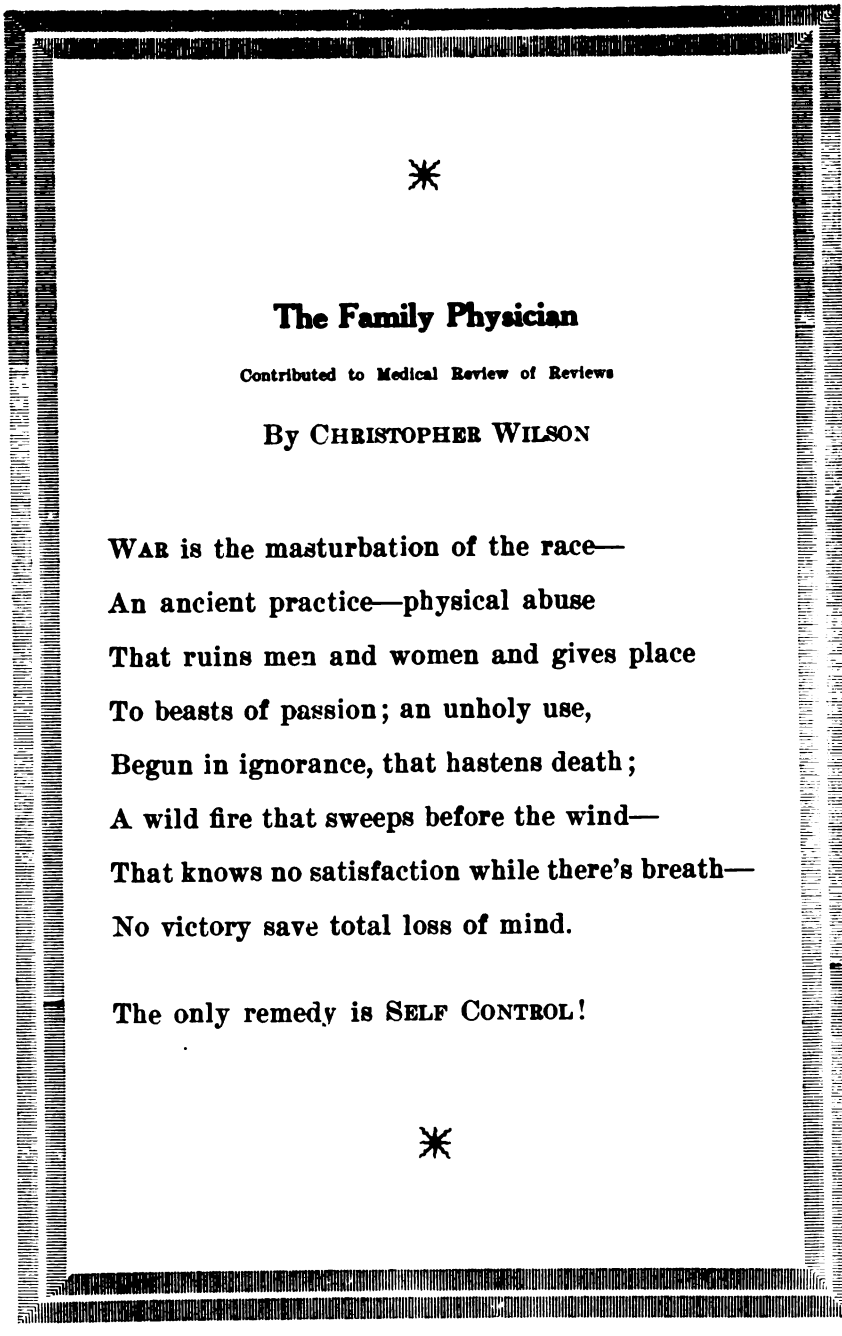

The Family Physician

Contributed to Medical Review of Reviews

By CHRISTOPHER WILSON

WAR is the masturbation of the race—
An ancient practice—physical abuse
That ruins men and women and gives place
To beasts of passion; an unholy use,
Begun in ignorance, that hastens death;
A wild fire that sweeps before the wind—
That knows no satisfaction while there's breath—
No victory save total loss of mind.

The only remedy is SELF CONTROL!

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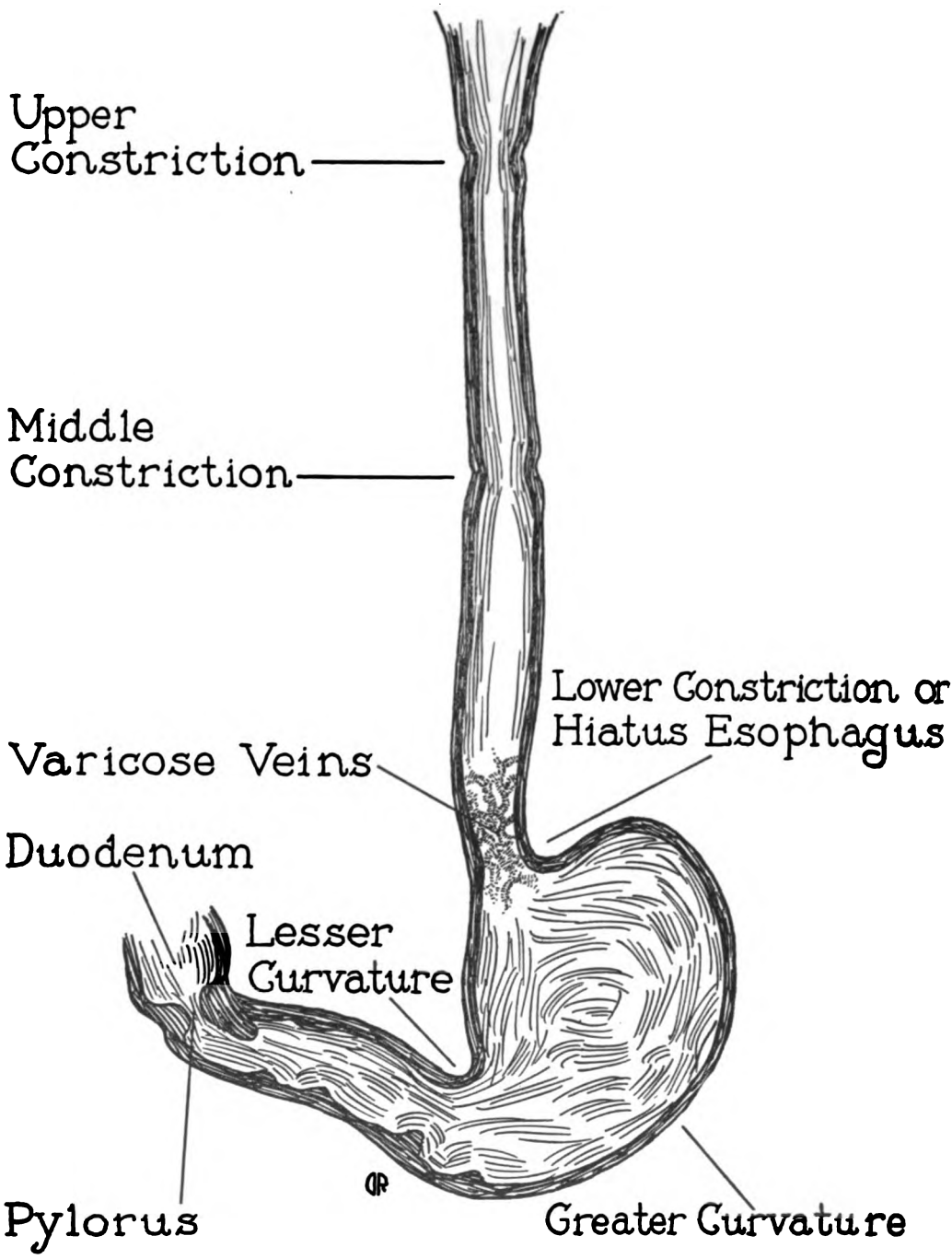

ILLUSTRATION SHOWING POSITION OF VARICES

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Varicose Veins of the Esophagus

By F. S. Mainzer, M.D.

Varicose veins of the esophagus are more frequent than was formerly thought and since the advent of endoscopy they are more commonly observed. They have in the past given rise to various errors in diagnosis, particularly gastric or duodenal ulcers and patients have been operated upon with a negative gastro-duodenal finding, at times detrimental to the patient. The first case reported was that of Diberder in 1837. This was followed in 1838 by Faurel, who also reported a case. In 1880 Leduc reported a case, cirrhosis of the liver of syphilitic origin which led to a case of thrombosis of the portal vein and veins of the esophagus and stomach.

Etiology: Venous congestion is the most common etiological factor, especially noted in portal hypertension in heart and hepatic cases. Secondly, cirrhosis of the liver due to alcoholism. It was formerly thought that varices of the esophagus were caused only by alcoholic cirrhosis of the liver but this theory was disputed by Leduc who had a case with mesentery thrombosis without cirrhosis of the liver. Cases are reported as having occurred in cancer of the liver, malaria, typhoid fever, inflammatory lesions along the portal vein, etc. Some authors have reported cases where no demonstrable cause could be found.

Location: As a rule varicose veins are found in the lower third of the esophagus and at times extending into the stomach. The veins run longitudinally along the esophageal wall, connected at numerous points by anastomosis. On endoscopic view they are rather large, thin and tortuous. The thinness of the vein is the cause of hemorrhage, as a slight necrosis occurs in cases where coarse food passes over this area. Another cause of hemorrhage is the rupture of a vein due to a sudden hypertension in the portal circulation.

Symptoms: Hematemesis blood is bright red, abundant and occurs suddenly without warning. In some cases the blood is black, but this is due to the fact that it runs into the stomach

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and there mixes with gastric juice before being vomited. The hematemesis occurs at times while eating, again after exercise or exertion. The hemorrhage may vary from an ounce to a liter. When the latter occurs it exsanguinates the patient and many times brings about death. Cases are reported of patients who have died following a single marked hemorrhage. Secondary symptoms may follow the marked cases consisting of chills, rapid pulse, numbness and coldness of extremities, syncope and coma.

DIAGNOSIS: The only certain means of diagnosis is direct esophagoscopy as the veins are readily seen standing out along the esophageal wall and into the lumen of the esophagus. On endoscopy examination a slight erosion or ulceration from the area where hemorrhage usually occurs is plainly visible.

TREATMENT: Several authors report cases that had improved after injections of horse serum. I personally believe that each case should be treated symptomatically, according to the severity of the case. Absolute rest is essential, morphin to quiet the patient, as these cases are usually under heavy stress from fear and excitement. No solid or liquid food should be swallowed. The fluid balance of the body can be maintained by hypodermatoclysis, proctoclysis and intravenous medications, including blood transfusions. The fluids by mouth should be withheld for a period of ten days if possible, which would give the ruptured vein ample time to heal. Lastly, one must not forget the important treatment of the underlying etiological factor, the portal hypertension if it can be found.

Case 1. M.F., a female, first came to the hospital in September, 1928, complaining of nervousness, choking sensations, rapid heart and weakness. She tired very easily and on slight exertion had to sit down and rest. The patient had had an enlarged thyroid since puberty. She was obese and weighed about one hundred pounds above her normal. In addition to her enlarged thyroid she was considered very myxedematous and was very tender over the gall-bladder and appendix. She had never borne any children but had had two miscarriages. Her menstrual periods were regular but had been very scant for the past two or three years. Laboratory examinations revealed the fol-

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lowing: hemoglobin 75%, red blood cells 4,220,000, leukocytes 7,800, polymorphonuclears 70, small lymphocytes 20, large lymphocytes 7, basophils 2, eosinophils 1; urea-nitrogen 23.36 mg., sugar 89 mg., creatinine 1.2 mg.; Kahn test negative; kidney efficiency test 55% in two hours; Urine—specific gravity 1.022, sugar negative, albumin trace, few white blood cells and epithelial cells; basal metabolism was plus 4.

Two entities were considered at this time: first, infected gall-bladder and second a toxic goitre. After going over the patient carefully it was decided that her goitre was inactive and that her gall-bladder should be removed. She was prepared on medical treatment for two weeks after which the abdomen was opened, revealing a badly diseased gall-bladder which was removed as well as the appendix and also a large ovarian cyst that was found on the right side [By S. J. Waterworth, M.D.]. The cyst was about the size of an orange, containing a dark, thin inky colored fluid. The post-operative reaction was very moderate but the abdominal wound healed slowly on account of the enormous amount of fat present superficially. The patient was discharged six weeks after her admission in good condition.

The patient returned to the hospital in July, 1929, about nine months after her operation, stating that she had been in good health since leaving the hospital except for several small attacks of pain over the region of the scar, also that during the past month she had two attacks during which she vomited about a tea cup full of bright red blood during each attack. She stated that these attacks came on suddenly. She would feel a fluid coming up into her throat which she thought was saliva but which turned out to be blood. After returning home following her operation she became careless about her diet and her weight had again increased more so than before the operation. On her admission this time x-ray examination of the gastro-intestinal tract was made which revealed pylorus spasm which was thought to prevent the filling of the cap. One third of the meal had left the stomach in 90 minutes. The conclusion of the x-ray examination was pylorus spasm with fixation of the duodenum. Treatment at this time consisted of an exploration of the abdo-

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men at the previous site of operation and a small incisional hernia was found. She left the hospital four weeks after her second admission in good condition.

After leaving the hospital she had no further abdominal trouble but had a recurrence of her nervousness which was thought to be due to her goitre. She was readmitted to the hospital November 3, 1929. She stated that about two weeks before she had had another sudden attack of vomiting of blood, the amount of which she could not estimate. She again returned home on treatment and returned to the hospital on March 8, 1930, at which time her laboratory examinations showed a secondary anemia with leukocytosis: the hemoglobin was 75%, red blood cells 3,050,000, white blood cells 10,050; the blood chemistry was normal; the basal metabolism rate was plus 10. Her treatment this time consisted of a bilateral subtotal thyroidectomy with a rather sharp post-operative reaction which lasted two or three days. About two weeks after operation she was discharged in good condition.

She returned on April 29, 1930, with a history that about a week after returning home she had vomited blood for two or three days. Her laboratory examinations were the same as at a previous admission; the x-ray examination was normal as regards the esophagus and stomach. She was then referred to the Bronchoscopic department. The next morning esophagoscopy was done with the following report: Mucous membrane of the posterior pharynx injected. Pyriform sinus was normal. The upper third of the esophagus was normal as regards the mucus membrane and upper constriction. The mucus membrane of the middle third of the esophagus was normal. There was slightly more constriction of the middle constriction of the esophagus than one usually finds and it had the appearance as if a spasm were present. The mucus membrane about two inches below the middle constriction was injected and about one inch above the hiatus esophagus small vermiform objects were seen. These extended down over the lower constriction and were found to be dilated esophageal veins. The hiatus esophagus was also in a state of spasm. The mucous membranes below the constriction, and extending into the cardiac end of the stomach showed

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numerous of these vermiform objects, larger in diameter than those above the constriction. The mucous membrane over these processes was very thin, as slight manipulation of the scope caused bleeding. The diameter of the veins below the constriction were about that of a match stick. Over one of the prominent surfaces on the lateral left wall there was present a small ulceration from which it was thought the hemorrhages occurred.

The patient was kept in bed and given the routine treatment after which she was sent home with advice as regards diet, rest and medications.

Case 2. M. E., a female aged 38, was admitted to the hospital March 2, 1926, with a history that she had been in good health until two weeks before, when she began having trouble. She could not eat but had no pain. On February 28, she vomited for the first time a large amount of blood that was followed in three days by vomiting blood on three different occasions. The blood was bright red and the amount she could not estimate. Her bowel movements were very dark. On her admission examination revealed a large, obese, foreign woman, very dyspneic and anemic looking; head—scalp normal, eyes—pupils equal, react to light and accomodation; nose—normal; ears—no discharge, hearing good; mouth—teeth in fair condition, tongue coated and dry, throat injected, tonsils infected; neck—slight bilateral enlargement of the thyroid; chest—contour normal, expansion equal; breasts—normal; lungs—normal vesicular breath sounds present over the entire lung areas, no rales; heart—both sounds present over the apex and aortic region, rate and rhythm good, no murmurs; abdomen—walls obese, no masses, no tenderness; extremities—marked varicose veins of the lower limbs. The temperature was 98.2 F., pulse rate 105, respirations 24. Blood examination revealed the hemoglobin to be 28%, red blood cells 1,720,000, leukocytes 7,550, platletts 610,000, polymorphonuclears 68, small lymphocytes 30, large lymphocytes 2; urea-nitrogen 12.06 mg., creatinine 1.95 mg., sugar 80 mg. Bilirubin faint trace. Kidney efficiency test 20%. Urine—specific gravity 1.025, acid reaction, sugar negative, trace of albumin, microscopic—urates. Roent-

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gen-ray examination revealed no gastric or duodenal deformity. The patient was given hypodermatoclysis, intravenous and proctoclysis medications and was discharged from the hospital three weeks after admission feeling fairly well.

Her second admission was November 21, 1927, when she gave the history that two weeks before she began having hemorrhages from the stomach and vomiting blood similar to the attacks she had had at her previous admission. These hemorrhages were only slight in amount. Her laboratory examinations at this time revealed a hemoglobin of 78%, red blood cells 4,470,000, polymorphonuclears 8,150, small lymphocytes 73, large lymphocytes 2, transitionals 1; urea-nitrogen 17.28 mg., creatinine 1.97 mg., sugar 100 mg.; Kahn test was negative. She remained in the hospital on treatment for ten days and was then discharged in good condition.

Her last admission was August 27, 1928, with a history that three days before she had vomited a large amount of blood and had become very weak and pale. On admission she was profoundly anemic, somewhat delirious and seriously ill. Her temperature was 99.3 F., pulse 105, respirations 24. Blood examination showed the hemoglobin to be 20%, red blood cells 860,000, polymorphonuclears 13,050. Urine—specific gravity 1.028, reaction acid, negative for sugar, cloud of albumin, many white blood cells and squamous cells. Late that afternoon she was given a blood transfusion of 300 c.c. by the Unger method. Her temperature rose as did the pulse and respiratory rates and she expired that next afternoon.

AUTOPSY: Body of a large fat woman of about middle life. She was a deep lemon yellow color, the sclera was white, lips and mucous membrane very pale. There was a small amount of rigor and a small amount of postmortem discoloration on her back. The superficial fat was very thick, about 3 cm. bright yellow, almost golden. The muscles were a bright cherry red. There was a peculiar odor of half cooked meat on opening the body.

There was a small amount of amber clear fluid in each pleural cavity; also a small amount of anthracosis, otherwise, the lungs were entirely normal. The pericardial sac was filled with

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clear amber fluid. The heart was enlarged to the right extending almost to the right midclavicular line. The apex of the heart was seen to be lying to the left midclavicular line. The heart muscle was extremely soft and very pale with a yellow cast. The right side of the heart was thin and dilated. There was no change in any of the valves.

There was a small amount of clear amber fluid in the abdominal cavity.

The liver was small being well up under the ribs, was soft, wrinkled, yellow and measured 30 cm. in greatest diameter and was 15 cm. broad and 12 cm. thick. It weighed 1422 gm. (average weight 1700). The cut surface was very yellow, soft with various sized red necrotic areas. There was very little blood in the organ.

The spleen was well up under the ribs, hidden by an omentum, it measured 15 x 10 x 6 cm., it was soft, flabby, the cut surface very homogenous, red and meaty.

The gall-bladder was distended with green bile. There were a few adhesions to the fundus. There was no obstruction to any of the ducts, no stones.

The pancreas seemed entirely normal.

The kidneys were very pale, soft, a small retention cyst on the surface of the left kidney, the capsule strips with the greatest of ease left a smooth pale pink surface. The cortex was about 1 cm. thick and was very pale.

The stomach contained a small amount of green liquid, no blood. The wall of the stomach was very thin, mucosa was smooth and white. There were no areas of hemorrhage. There was no ulcer, nor any tumor.

The veins of the lower esophagus were markedly dilated and an ulceration was present at one point. The rest of the intestinal tract was practically free from food. No tumor, no adhesions, no evidence of hemorrhage.

The urinary bladder was filled with urine.

The tubes and ovaries were in normal position and of normal size. The endometrium was quite hemorrhagic.

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Co-operation of Health Agencies with Physician and Public

By Irving Wilson Voorhees, M.S., M.D.

In some quarters, the medical profession has looked askance at the various activities of Foundations and similar philanthropic agencies which have taken upon themselves the burden of studying health problems, ostensibly among the poor, but in reality covering the entire human field. There is, of course, some real danger to the rights and prestige of the individual physician in the excessive zeal of health workers who are determined to make a showing for the sake of holding their paid positions with the great organizations. Much of what they do requires no special technical knowledge, and they are within their legal rights even to the point of advising the public about diet, hygiene, exercise, vacation periods, etc.—all of which used to be strictly the concern of the physician. Medicine is going through a transition period wherein the individual is gradually being pushed aside and in his stead the group idea is rapidly gaining ground.

This trend cannot be changed or checked. It is part of a mighty movement whether for good or ill, and the sooner the medical profession grasps this fact, the better. The day is at hand when it is impossible for the physician to obtain and maintain a clientele which shall have within it the essence of loyalty such as our fathers knew. None of us in these days has much of a hold on his patients. The pull against us is tremendous, socially, economically and financially. We must look facts squarely in the face and gird our armor to meet them.

Apparently there has been a growing public dissatisfaction with the kind of service we physicians have rendered, and with the rewards we have asked for the doing of it. Failure to bring relief from suffering whenever or wherever it occurs is a damning fact—leaving entirely out of account diseases and conditions which are absolutely incurable. And if, in addition, we charge the patient a sum of money for an unsuccessful effort, he is wounded beyond redemption. The only way to reduce failure to a minimum is to practice group medicine. That has

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been the great secret, if it is a secret, of the success of the Mayos. They have rendered conspicuous service to a host of humans, not personally, but through the skillful diagnosis and treatment of individual members of their group. Added to this they have made it a point to make their charges satisfactory in every instance insofar as possible. Moreover, they have greatly benefitted by the publicity which this group plan has naturally brought them—a perfectly legitimate and excellent way of "selling" service. The patient has felt that whatever ailment he suffered from would, most likely, be correctly determined in the community of counsellors for which the Mayo Clinic is so justly famous. He knew he would always get a "square deal" in every way.

In spite of the long years of success with this group idea, it is surprising how slow the profession has been to take up with it. Every physician knows what it is and just how it works. Many of us have been guests in Rochester and have come away enthusiastic about what we have seen, but we have gone back to the humdrum of office routine uninspired, and uninterested in the work of our confrère next door. There is decidedly something peculiar about the psychology of that situation.

At this time a great impetus prevails toward preventive medicine with the health examination as its nucleus of effort. This is undoubtedly a fine constructive idea and deserves of our help and praise, but it will make its way slowly. Curative medicine is still at the top of the scale in the mind of the patient. He does not wish to be bothered when "there is nothing the matter with him," and prefers to take chances with fate until warned by symptoms to "see a doctor."

In the City of New York, both the public and the medical profession are to be congratulated upon the excellent efforts which are being made in the Department of Health through the instrumentality of Health Commissioner Dr. Wynne toward bringing the health message to the mind and heart of parents. Most parents love their children, but, curiously enough, it sometimes seems that the more children are loved, the less thought is given to their preventive needs. It is somehow taken for granted that other children may have diphtheria or scarlet

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fever or any of a dozen other ills, but not "my child." Dr. Wynne is making a concerted effort to appeal to this kind of parent, and he has solicited the interest and help of the man in general medicine whose function it is to safeguard the health of these little ones in families where he is medical guide and counsellor. He plans to institute a "Children's Hour" in the offices of physicians who are willing to try out the innovation. A similar scheme to that which proved successful in the toxin-antitoxin immunization "drive" is to be recommended. Printed slips signed by the Health head and the President of the County Medical Society are to be sent out by the physician to such of his patients as ought to be interested, calling attention to the setting aside of a children's hour each week to advise with parents as to feeding, hygiene and general care, vaccination, diphtheria protection, and general check-up on such matters as teeth and tonsils. A "special" fee is also mentioned, a fixed fee, so that the parent may be encouraged to spend the time and effort required in bringing the child in. A mother calling the Department of Health will be given the names, addresses and fees of from three to five physicians residing in her neighborhood to whom she can go with assurance.

By such means, it is hoped that the baneful influence of proposed compulsory insurance, state medicine and other fanciful projects may be aborted, and the idea of consulting the doctor may be "sold" to the patient.

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The Factors Making For Successful Results in Operative Ophthalmology

By L. Webster Fox, M.D., LL.D.

Exception may be taken to the term operative ophthalmology as used in the title of this paper on the ground that ophthalmic surgery covers the topic in a much better manner, but since our remarks have to do with the surgical operations of ophthalmic surgery it may be readily appreciated that our choice of words is not without merit. All the surgical eye diseases are not operative.

A further analysis of the title of this discussion brings us to a consideration of just what is meant by "successful results"? Primarily a successful result is accomplished when the immediate objective of the operation is attained, but it should be borne in mind that in every surgical procedure, the remote result, that of perfect health, permanent relief of pain and distress, and, in the cases of the eye, restoration of sight are the ends that justified the patient in assuming the risk, and to the extent to which these are brought about, just to that extent should the operative procedure be looked upon as successful. The patient's viewpoint therefore is not to be ignored, and should the operation be even a partial failure from his standpoint, this opinion cannot be set aside and we must fashion our technic so that these shortcomings may be completely eliminated.

While the good result obtained by the patient, even though remarkable from the surgeon's point of view, is noteworthy we are being brought face to face with the problem of the number of sick or hospital days connected with the performance of operations of election, and the mounting hospital costs makes for the demand for a decrease in the number of such days, and a corresponding reduction in the cost of the hospital sojourn. Our successful result in any case, while it may excite wonder and admiration in far off India is not considered of the highest order if at the same time it leaves our patient penniless. The

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successful result is therefore one satisfactory alike to patient and surgeon as to immediate and remote effects accomplished with the minimum number of hospital days.

In a casual survey of the active ophthalmic surgeon throughout the country it would appear that most of them were endeavoring to meet the objectives referred to in the previous paragraph, and that their efforts were being attended with no little success. The rapid changing of the times together with the ease with which new and novel procedures are brought forward for trial makes for a situation somewhat confusing for the new workers in the field. We are committed to the thought that the staff of the teaching institutions should exhaust the possibilities of all the new modes of therapy presented to the medical and surgical profession, but this should not be taken to imply a recommendation until the method or methods have conclusively proved their worth. Too often the teacher in his demonstration of some new procedure fails to impress the student body that the particular procedure is being employed experimentally.

The overabundance of new thought available and its indiscriminate application provides us with the topic for this paper since it is our purpose to show herein that there yet is an orthodox line of procedure in ophthalmic practice which still maintains a position of prominence not only as regards immediate results but as to remote benefits, and also as to minimum number of days of hospitalization.

This orthodoxy is founded upon mass experience and sustained by judgment founded upon individual experience, and as in many other lines bristles with simplicity. The first factor in this line of practice has to do with the selection of the proper type of patient for any particular operation, and as a corollary the selection of the right kind of operation for the individual patient. If the patient is not right for the operation, failure is encouraged. The preparation of the patient calls for the placing of the individual upon an operative level by bringing the functions of the vital organs to the highest degree possible. Of equal importance is the placing of the eye itself in proper condition. So widespread is the recognition of the potentialities of

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pus or muco-pus in or about the area to be subjected to an elective operation, that little warning needs be given in this regard. There is, however, a hidden danger of which we are not so likely to take notice, namely the obscure foci in the teeth, tonsils, sinuses, etc., which in the presence of the physiological reactions to surgical trauma may throw in the blood stream toxins or other material which may ruin an otherwise perfect ophthalmic operation. These constitute the so-called endogenous infections and must be greater than we realize since so many of our indifferent results cannot be ascribed to factors introduced from without by the surgeon or his assistants. They doubtless account for the cases that go wrong in the presence of the highest degree of aseptic technic, and the best possible skill.

In order to combat such possibilities as those just mentioned, most elaborate formulae have been devised. Many of these presume that in all cases the infecting agent or agents are introduced from without, and as a result a most exacting preparatory technic is created. The general plane of cleanliness has been so raised that many of the precautions insisted upon in surgical clinics have been anticipated and observed long before the hospital or operating room has been reached. Our own technic is built around a minimum amount of manipulation of the eye which has been rendered devoid of pathogenic micro-organisms. To this end we rely to a great extent upon thorough irrigation of the conjunctival cul-de-sacs and we avoid direct contact with the field by the hands—hands of the surgeon or assistants. The instruments being metal permit of perfect sterilization, and they only come in contact with the prepared field.

A great number of complications are anticipated by certain surgeons and combatted by surgical procedures often so elaborate as to overshadow the main part of the operation. The performance of these additional units as a routine procedure, in our opinion adds to the hazard of the operation, and neutralizes the advantage gained by the intensive asepsis. Also these features divert the attention of the student from the necessity of developing skill in the performance of the operation itself. Too much reliance becomes placed on the correlated features of

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the operation and the essential part becomes blessed with indifference.

Every surgical operation is attended by surgical shock and surgical trauma. Our feeling is that both of these factors are reduced in the proportion that surgical skill is developed. A technic that inspires a feeling of security encourages delay in the operation and discourages any ambition toward perfection of the operation itself. In the pre-anesthesia days surgeons were compelled to develop such skill, and as a result the brilliant surgical advances of ophthalmology are all to be found in that period, while in the post-anesthesia and aseptic period the complicated preparatory and supplemental procedures in operative ophthalmology predominate. Our conviction is that the less the manipulations and trauma in eye surgery the better will be the result, both immediate and remote, and the less the period of hospitalization.

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MEDICAL REVIEW OF REVIEWS
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NEW YORK

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"Through the medical journals have been given to the world nearly all the discoveries which the science and art of medicine owe to American physicians. They furnish the original data which are the foundations of monographs and text books, and their files remain interesting and valuable when the latter have become obsolete and are forgotten."

—JOHN S. BILLINGS, M.D.

EDITORIALS

Reminiscences

THE TRIAL OF MARY WARE DENNETT

Mrs. Mary Ware Dennett is on trial in the federal court in Brooklyn accused of sending an obscene book through the mails. It was a pamphlet the contents of which had appeared in the MEDICAL REVIEW OF REVIEWS, which commended it and suggested that it be printed for general circulation. It was a text for sex education and was used in Columbia university, by the Y. M. C. A., and other educational institutions.

Aside from the legal issue of whether the circulation of the book violated the statute the question involved is one of the most perplexing in social life. It divides people who seek the same objective, a wholesome condition of society morally and physically. These are extremists on both sides, advocates of a primitive candor and believers in a ribid taboo of silence. As in other questions, the moderates come more nearly to agreement and still do not agree. Because it concerns morality the churches are interested and it is probably true that the majority of priests and clergymen are opposed by instinct and judgment to relaxing of rules and laws against public discussion of sex morality for the education of youth.

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It is conceded that the purpose of circulating the book was not to be provocative. It is apparent that the author was advancing the doctrine held by her and others, that the way to morality should not be vulgar and furtive, but reasoned, frank and natural. Many intelligent people must confess that they do not know what would be wise. It is dangerous ground for the doctrinaire. Theory here will not prove itself by logic.

The background of the trial, with these confused and obscured issues involved, was curious. Churchmen were attracted to the scene and it presented a picture more of an ecclesiastical hearing than of a procedure in the United States court. It was only a picture, but it was one which deserves consideration. A report of one day's hearing recorded:

"Three clergymen sat with Judge Moscowitz on the bench and preserved a judicial impartiality. These were Msgr. John Belford of the Roman Catholic Church of the Nativity, Rabbi Louis D. Gross of Union Temple, and the Rev. G. P. Atwater of Grace Episcopal church, Brooklyn."

The clergymen were the guests of the court and given the courtesy of the bench as it is sometimes extended to visitors. The assistant United States district attorney addressed his condemnation of the book, its purpose, its effects, and of its author, accused of a serious offense against the criminal laws of the country, to this bench. The impressiveness of the picture is that the federal judge seems to fade out of it, leaving the three clergymen, with their impartiality described as "judicial." —*Chicago Daily Tribune,* February 1, 1929.

[Once is a while it happens that common sense has its day in court: Mrs. Dennett was triumphantly vindicated, and her MEDICAL REVIEW OF REVIEWS essay may now circulate freely—despite our moronic censorship.]

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Ouabine Therapy in Heart Disease

By Edward Podolsky, M.D.

Among the notable heart remedies has been strophanthus. However, because of its emetic effect which is quite marked, and because its action is not always certain, its use has not been very wide. In 1869 Fraser isolated a glucoside which he named strophanthin. Since then several forms of strophanthin have been recognized: the amorphous strophanthin extracted from strophanthus hispidus and from strophanthus kombe, and the crystallized strophanthin derived from one or the other of these plants, and also from strophanthus gratus.

Strophanthus was studied anew by Fraenkel in 1906, who described, with a great deal of enthusiasm, its wonderful effects in the treatment of advanced heart failure. His results were confirmed by many investigators; but it was also shown that serious accidents and even sudden death occurred altogether too frequently, especially when given by the intravenous route. Its use was then naturally abandoned, and many felt, and many still do, that it was a dangerous drug which should never be used.

Among the really great cardiologists who did not lose his faith in strophanthus was Vaquez, who was so impressed by the good results obtained from the use of this drug that he determined to investigate reasons for their toxic action, and to find a substance that would retain the undoubted high therapeutic value without the dangers demonstrated to exist in the strophanthins in general use at that time. He soon learned that the way in which the strophanthin was prepared had a great deal to do with its toxicity, as well as the substances from which it came, and also that the preparations were not constant in either activity of toxicity.

In 1882 Annaud, professor of chemistry at the Natural History Museum, Paris, succeeded in isolating the active principle of Acocanthera Ouabio, a tree, the wood and especially the roots of which yielded the poisonous extract employed by

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the Somailis for their arrows. This active principle proved to be a glucoside which he called ouabaine. Vaquez immediately became interested in this new glucoside and said that this was the remedy which he sought and he found upon subsequent investigation that it possessed all of the advantages of strophanthin with none of its dangers, and adds that he gave over 2000 injections, without seeing any serious accidents, much less fatal results.

Arnaud continued his investigations, and in the course of his researches bearing on the different kinds of strophanthus and the active principles contained therein, satisfied himself of the chemical and physical identity of the crystalline principle obtained from strophanthus glabra, of Gaboon, and the one he had previously extracted from ouabio wood. For this reason he gave the name ouabaine to this crystallized glucoside obtained from strophanthus glabra, of Gaboon, hoping in this way to distinguish it from the strophanthins. There are still some who apply incorrectly the term ouabaine to the crystallized strophanthins, and this is somewhat unfortunate. One part of ouabaine dissolves in 150 parts of water at 15°C. Treated with sulphuric acid, ouabaine yields a brownish-red color. It deviates the ray of polarized light to the left. It appears in colorless crystals of a slightly bitter taste; it is more soluble in hot than in cold water, and it is insoluble in absolute alcohol, ether, and chloroform.

Vaquez, who has had an enormous experience with ouabaine, said that ouabaine was to be preferred to digitalis whenever cardiac insufficiency was associated with loss of myocardial tone. While digitalis has a marked effect on contractility, excitability and conductibility of the myocardium, it has very little influence on myocardial tonus. This was amply proved by Baraige in a series of electrocardiographic studies; Japelli and Meldolesi further confirmed this. These studies tended to show that in small doses ouabaine acted upon the tonus and contractility of the heart by determining a reinforcement of systole and slowing of the pulse.

The loss of myocardial tonus takes place either in acute dilation or in the course of progressive cardiac insufficiency

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such as follows valvular lesions, subacute myocarditis, etc. Ouabaine also has been found to be an effective diuretic, and its diuretic action becomes manifest as a rule within 24 to 48 hours after beginning treatment.

Ouabaine has been used with good results in cases of acute dilation of the heart. In cases which are manifested by angina pectoris or by pulmonary edema quick action is essentially and this may be obtained by an intravenous injection of ouabaine. In progressive insufficiency of the left heart with the sudden supervention of increased blood pressure, ouabaine effects a noteworthy improvement within twenty-four hours. The precordial pain and dyspnea diminish, the pulse becomes slower and more regular, and the increased blood pressure is cut short. This is due in effect to the action of the drug on the tonus of the myocardium which has overcome the peripheral resistance.

Certain cases of right ventricular insufficiency are refractory to the action of digitalis. This lack of action on the part of digitalis may be due to the clogging of the circulation (enlarged liver) or to the widespread peripheral edema, or perhaps to the fact that disturbances of conductibility have followed loss of myocardial tonus "cardiac asthenia." The ascitis should be relieved by the proper means and ouabaine therapy instituted for two or three days in daily doses of 50 drops. This measure often succeeds when digitalis therapy fails. In some cases it has been found that when digitalis is again given it acts in a more efficient manner because the myocardial tone has been improved by the ouabaine. This would seem to be in the form of a reactivation of the digitalis by the ouabaine. Dimitracoff records several cases in which patients suffering from complete cardiac insufficiency, generalized edema of long standing who had taken digitalis with no effect were relieved by the successive administration of ouabaine, digitalis and theobromine.

In certain cases of arrythmia, more particularly in attacks of tachycardia which are apt to be brought on when the auricle is very much distended, ouabaine has been of distinct benefit. In paroxysmal tachycardia ouabaine is often indicated, first to

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arrest the attack, and second to overcome the effects of dilatation.

In heart disease of pregnancy ouabaine has been given by Fiessinger to pave the way for subsequent digitalization which is brought on quicker and more effectively. Jamison and Jones have found ouabaine very useful in cases of aortic regurgitation and the large hearts of syphilis, with failure of the leftside of the heart.

The contraindications of ouabaine are: advanced cardiac cachexia with generalized serous infiltration where the degenerated myocardium is incapable of responding to even strong stimulation; inflammatory complications of the lungs, hepatic insufficiency, chronic kidney involvement, infective endocarditis grafted on primary valvular cardiopathy, constituting a form of malignant endocarditis running a slow course that defies every kind of treatment.

Ouabaine comes in various forms, tablets varying in dosage from 1/480 to 1/120 of a grain; in ampoules containing from 1/240 to 1/120 of a grain per cubic centimetre; in solution. In emergency cases it is of course imperative to administer ouabaine by the intravenous route. According to the severity of the condition 1/240 to 1/120 of a grain is given, and is administered once in every 24 hours. Four doses at intervals of 24 hours each will, if it is at all possible to secure any relief, be sufficient. Intramuscular injections may be given in doses of 1/240 to 1/120 grain, using only ampoules prepared especially for intramuscular injection. This is also best given at intervals of 24 hours each for three or four days.

The solution of ouabaine which is made specifically for oral administration is given in doses averaging 100 drops per day. According to the severity of the diseases the dose is from 30 to 50 drops for the milder heart affections and 100 for the more severe types of aortic regurgitation. Ouabaine is a drug that cannot be given indefinitely; the average number of days during which the drug should be given is about four. In children over five years of age, the dose is two or three drops a day for each year of age. The specified dose can be given all at once or in

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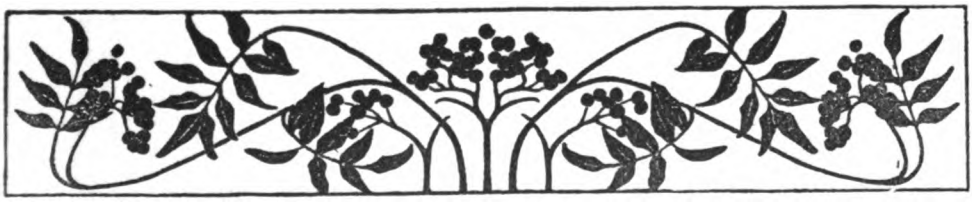
divided doses, according to circumstances. It should be given fasting or between meals in a little sweetened water or milk.

In tablet form ouabaine may be given in dosages of 1/240 of a grain, 6 to 8 tablets a day for periods of two to three days, repeating every twenty or twenty-five days.

The solution may also be administered rectally in urgent cases of acute dilatation of the left heart with acute pulmonary edema. For this purpose 50 drops diluted in 50 cc. of water adding about 10 drops of laudanum is used. This is particularly valuable when the patient is suffering from gastric upsets or where a vein is not readily available.

Ouabaine of course was never intended to take the place of digitalis and never will. The two drugs have essentially different actions. Digitalis, by its moderating action on the excitability and conductbility of the heart, regulates cardiac rhythm, whereas ouabaine improves myocardial tonus. From this point of view ouabaine supplements the action of digitalis, the two substances constituting by their judicious successive employment, a particularly valuable sort of therapeutic complex. Certain cardiologists, among them Laubry and Pezzi, Danielopolu, and Baltaceanu have pointed out that digitalis and ouabaine can very well be administered at the same time.



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MEDICINE ABROAD - III

Chinese Materia Medica

By P. C. GIBBONS

Some years ago the writer predicted the eventual attention to Chinese drugs, and stated that many would find a place in Western medicine when a detailed study was made of them. The recent isolation of Ephedrine from Mahuang has proved the beginning of the writer's contention. In past articles the writer has mentioned many drugs used by the Chinese and has seen very good results from their use. A few more will be mentioned in this article.

Aceranthus Sagittatus. This is identical with Spimedium Sagittatum and is said to have strong aphrodisiac properties. Goats eating this plant are said to be incited to excessive copulation, hence the name in Chinese (Yin-yang-huo). The root and leaves are the parts used in medicine. It is prescribed in sterile conditions and is said to have great virtues. In decoction it is used in corneal affections and ulcerations of the eye after exanthematous diseases.

Achryanthes Bidentata. The plant is sold under the name ox-knee (Niu-hsi) as it has large joints resembling the knee of an ox. There are many different species and they are all sold in Chinese shops. The best quality comes from Honan Province, and is in the form of a small quill, bitterish taste and acrid. The stalk leaves and root are used in medicine and the shoots of all the varieties are edible. Anti-rheumatic and anodyne properties are among the chief assets of this plant and it is also used in ague, fever, urinary troubles, puerperal and

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cutaneous diseases. So persistently is it recommended in labor and puerperal conditions that it might be well worth an investigation.

Kaolin. This is china clay (aluminum silicate). It has been used for centuries by the Chinese in dysentery, cholera, diarrhœas and similar conditions. However, it has never been used to any extent by the Western physicians which is quite regretable. Articles have appeared in the medical journals on and off in Europe and the U. S. and it has definitely been proven that kaolin is of value in intestinal conditions. However, as used by the Chinese, it is not altogether pure. Pure Kaolin should be free from gritty particles and gypsum, and the form known as Collosol Kaolin seems to be the most effective. There is a clay poultice on the American market which is being sold in China. Somehow or other the Chinese have found out that this clay poultice (which contains glycerine) when mixed with water and swallowed is of value in intestinal conditions. They do not know it is one of the products they have used for years. The sooner Western physicians pay attention to this clay the more interesting will become the facts. The writer has seen plenty of kaolin used in China with excellent results.

Charcoal Vegetable. The best charcoal for medicinal use is supposed to be made from oak wood. The powder is mixed with honey and given in acute diseases of the throat or is combined with other drugs in the treatment of dysentery. Charcoal dust is mixed with water and used as an antidote to poisoning by mercury or calomel. Soot is used as an antifebrile, astringent, styptic, absorbent, alterative, deobstruent and topical remedy.

Chenopodium. Several Chinese plants may be referred to this classification but only one seems to be thoroughly described by the Chinese. The character for this form is also applied to Veratrum and Aconitum but in this place is made the equivalent of LAI which is Chenopodium. It is also called "red-nearted-goose-foot," cranes crest vegetable and cosmetic vegetable. When young the plant is used as a food and when old the plant is used as a walking stick. The leaves and stalk are

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used in medicine—the former as an anthelmintic and insecticide and the ashes of the latter as an escharotic in unhealthy granulations and to remove warts.

Arachis Hypogaea. The peanut is too well known to discuss. It is regarded with much favor by the Chinese and is an article of diet. Large quantities are roasted and eaten by all classes of people. The peanut is considered to be nutritive, peptic, demulcent and pectoral—in the last case it is recommended to be eaten raw. Cases have been recorded in which those affected with chronic coughs (phthisis) have been fully cured by eating one to two ounces of raw peanuts daily for half a year. The oil is made in many places in China and is a fair substitute for olive oil. It is laxative and pectoral.

Trapa Bisinosa. This is the water-chestnut known as Ling-chio and Lao-ling. The common kind is two horned; but there are three and four horned kinds. It grows plentifully in the ponds, lakes and rivers in China and has been used from very ancient times as an article of diet. Boiled, it is eaten in great quantities with great relish both by foreigners and Chinese. It is regarded as nutritious and constructive and being a water product it is thought to relieve thirst and reduce fever. The flowers and shells of the fruits are used for dyeing the whickers and as an astringent in fluxes.

Terminalia Chebula. The fruits of this tree have long been celebrated in European and Indian medical practice under the name *myrobalans.* The first name is an imitation of some Sanscrit name, the drug having been brought by T'ien Wang from India. In India it produces a gall-like excrescence upon its leaves, the result of the deposition of the ova of some unknown insects. They are astringent and very useful in infantile diarrhœa. In former days Cochin-China, Persia and Arabia supplied the myrobalans to China. They are classed in Chinese materia medica after the galls and not with the fruits and it is possible that the galls of the tree were imported with the fruit. They are used in China as a mild laxative, deobstruent, tonic, carminative and even astringent remedy variously combined with other drugs to determine its action to the lungs, stomach

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and intestines. In India it is used as a topical and general astringent drug highly extolled by the natives. Twining has found the fruits serviceable in enlarged spleen. The seeds are mixed with white honey and used in eye diseases, also used in coughs and dysentery. A decoction of leaves is carminative, demulcent and astringent.

Smilax Pseudo-China. This is also called "cold rice ball" and "mountain ground chestnut." The root resembles Smilax China but is round and consists of a conglomeration of tubers the size of a duck's egg. It can be used as a food and strengthens the body and assists in keeping one awake at night. It is regarded as a tonic, astringent and corrective in diarrhœas and curative in ulcers and mercurial sores. Its use par excellence is in syphilitic difficulties especially the secondary and tertiary forms. Dr. Waring the well-known authority on Oriental drugs and their uses, found the large tuberous roots of the Burmese variety, the Smilax prolifera of Roxburgh, very useful, used in the form of a decoction of the fresh root, in secondary syphilis, cachexia and chronic skin diseases.

Smilax Sinensis. This is larger than the Smilax China and is yellowish white. It is regarded as a tonic and is very warming and quieting: also used with good success in nocturnal polyuria and all forms of gonorrhoeal conditions.

Pinellia Tuberifera. In preparing this plant for medicinal use the tubers are soaked in warm water for 7 days and dried. After slicing they are mixed with ginger juice and kept for use or else powdered and mixed with ginger juice, dried and repowdered. This is sometimes made into cakes, or the powder is mixed with ginger juice and alum, made into cakes and wrapped in mulberry leaves and preserved in salt. The drug is claimed to be antifebirle, tussic, counter-emetic, ecbolic, antimalarial, astringent and slightly laxative. It is also used in fevers, influenza, jaundice, coughs, seminal losses and gonorrhoea. All diseases attended by "phlegm" are particularly its therapeutic field. That the prepared drug is comparatively inoccuous is proven by the fact that in mission hospitals it has

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been substituted for sulphate of potash in the preparation of Dover's powder.

Nothosmyrnium Japonicum. This plant is especially recommended for women and is employed in congestive affections of the skin. It is added to cosmetic preparations, both on account of its good influence on the skin and of its fragrance. The seeds are used in rheumatic affections of the extremities as a resolvent.

Menyanthes Trifoliata. The Chinese point out very clearly the slightly narcotic properties of this plant both in their description of it and in the various names applied to it. It grows in ponds and the people in that vicinity pickle it and use it to produce sleep. Its only medicinal use is as a hypnotic and from the writer's experience he can say that it works.

Melia Azedarach. There are two species and the Chinese do not seem to distinguish between the two. The best species yields a bitter oil and both in China and India is used as an anthelmintic remedy. The flowers are used for prickly heat and are put under beds to destroy fleas and lice. The bark of the root and tree is anthelmintic and parasitic and are highly valued in intestinal worms and parasitic skin diseases.

Mangifera Indica. This has an Indian origin and is commonly known as the mango. It can be eaten freely with no bad effects and is thirst relieving, promotes the circulation of blood and assists in menstruation. The leaves are stated to be very cooling. According to Lindley the root bark is an aromatic bitter, excellent for use in diarrhœa and leucorrhœa. He also states the seeds are anthelmintic. Dr. Waring recommends the powdered seeds as an excellent remedy in lumbricoid worms and says that strongly astringent qualities, dependent upon the presence of a large proportion of gallic acid, recommend this powder for use in menorrhagia and bleeding piles.

Hordeum Vulgare. The classical name is MOU. This cereal has been known to the Chinese for cenutries yet it has not for a long time been cultivated by them. They do not value it as a food and have not used it extensively in the manufacture of liquors, millet and rice being used for this purpose. Several

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varieties of barley are known and are divided into two species the one given above and "nacked barley" which separates from the chaff in the same manner as does wheat. Possibly in past centuries the grain was of more value than it is to-day. The kernel is longer and not so plump as that found in Western lands. This is also the case of all cereals raised in China. Barley is considered by the Chinese to be very nourishing, prevents fevers and gives strength to the body. The shoots of the plant are used as a diuretic and as an application to chillblains and frozen extremities. Malt or barley sprouts is prepared by moistening the grain and allowing it to germinate. It is then dried in the sun and sprouts rubbed off: the grain is ground into flour. It is considered peptic, stomachic, lenitive, demulcent, expectorant and abortifacient. The last property might indicate the presence of ergot. It is much used in puerperal fevers and infantile affections and its reconstructive properties are well recognized. For this purpose it is recommended in phthisis and the KAN disease of children (tabes mesenterica).

Humulus Japonicus. The Chinese have used this for ages.

It is called the wild hop of China and Japan and the Western physicians have reached the same conclusions regarding its use as have the Chinese.

Gymnogongrus, Pinnulata. This is one of the marine algae found all along the coast of China south of the Yangtse River. Its taste is very mucilaginous and it is easily converted into a gelatinous mass by cooking with water. Some women use it as a bandoline. It is used medicinally, principally as a demulcent in fevers and colds and it is said to be very useful in cinnabar poisoning. Its demulcent properties certainly recommend it in catarrhal affections of the bowels and bladder.

Chloranthus Inconspicuus. The flowers of this plant which is of a tropical genus are used to scent tea which is called Chu-Lan-ch'a. Directions are given that after having imparted their fragrance to the tea, the petals should be sifted out as their use is considered to be deleterious. Among scented teas, this is in most favor, although that scented with the petals of Jasminum sambac is preferred by some, and from some 20 years

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of steady tea drinking the writer prefers the Jasminum. Its action is sudorific and stimulant and its use is suggested in malarious fevers sine, according to Blume, the root of a very similar species is extensively used in Java in the intermittent fevers of that island. This the writer can also vouch for.

Cassia Fistula. Du Halde, who never was in China, but who wrote his work on things Chinese, drawing all of his information from the letters of the Jesuit missionaries, says that this tree was found in the province of Yunnan. Dr. Williams describes the pulp as "reddish and sweet and not so drastic as the American sort: if gathered before the seeds are ripe, its taste is somewhat sharp." No other authorities are found for this plant and it is not mentioned in the Customs list. The subject is worthy of investigation. Waring, in the Pharmacopœia of India, quotes Dr. Irvine as stating that the root of this tree acts as a very strong purgative.

Ipomoea Hederacea. The Chinese name is Hei-ch'ou on account of the color of the seeds. There is a black and white variety and both have a beautiful blue flower. The fruit, which is in a capsule, is picked while still unripe and roasted in honey, to be eaten as a sweetmeat. The two varieties as seen in Chinese shops are mixed together and are regarded as diuretic, anthelmintic and deobstruent and they are prescribed in dropsy, constipation, to promote menstruation and to produce abortion. In the Indian Pharmacopoeia the seeds are suggested as a substitute for jalap. Several preparations of the black seeds which are called Kaladana are found in India.

With proper research work China will produce many excellent drugs for the Western World.

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Modern Management of the Diabetic Patient

By R. T. DEEN, M.D.

Despite the relief that the discovery of insulin has brought to the diabetic patient, enabling him to keep down the amount of blood sugar and to live an approximately normal life, the diabetic mortality figures have, strangely enough, shown no fall. Recent figures made available by the Metropolitan Life Insurance Company show, on the contrary, that the death rate from diabetes has been rising steadily during the past three years and has reached a new high level for the first quarter of the year 1929,[1] which bids fair to become by the end of the year the highest figure ever recorded for deaths from diabetes.

According to the company's medical opinion, this is due to over-indulgence in food and drink, and only the use of insulin has kept the death rate from being even higher than it is. Insulin, it must be remembered, is not a preventive of diabetes, the origin of which must be traced to wrong dietary habits and self-indulgence in matters of food and drink, with too little exercise to burn up the sugar ingested. Possibly also a constitutionally defective endocrine glandular system plays a part. There is good reason, in Pende's opinion, for the belief that certain individuals are predisposed to pancreatic insufficiency. Some persons who show a familial tendency to the condition have not so much a true heredity of it as they have a common environment in which the whole family group is subjected to the same careless and excessive food habits, indolence, and the like. In such families those members with constitutionally inadequate pancreatic function would react unfavorably to the environment and develop the picture of diabetes.

It is interesting to note that diabetes is a disease of the rich and well-fed, and is rare among those who eat with moderation and take adequate exercise. That it is due not so much to excess of carbohydrates alone as to general overeating and underexercising is now generally recognized. Bose of Calcutta

[1] This contribution was prepared in 1929, and has been kept by the author for additional verification.

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reports that the poor working-class East Indians whose principal article of diet is carbohydrate in the form of rice do not suffer with diabetes because they are accustomed to take enough hard exercise to burn up all the sugar liberated, so that it produces heat and much energy in the shape of muscular work. Temporary hyperglycemia is thus quickly brought down and they have a normal blood sugar again. Diabetes is rare also in the Chinese, Japanese and African negroes. In the United States it is probably that prosperity and the widespread use of the automobile in place of the legs bear a significant relation to the increase of the disease. That nations that overeat and dislike physical labor are the diabetic nations. "The faithful pancreas and liver," says Bose, "bear these insults for a pretty long time before they finally give way. The hyperglycemia after eating lasts longer and throws extra strain on them in their vain attempts to restore balance. By the time the blood sugar gets down to a normal level the next meal comes along, and the same abuse of nature is repeated. Sooner or later the pancreas and liver break down and sugar accumulates in the blood beyond the threshold level of the kidneys."

The first symptom that brings the patient to the physician is generally the polyuria, which disturbs his sleep. He is usually over-weight, frequently even obese when the trouble begins. Excessive hunger and thirst are present, but as the disease progresses he loses weight and strength despite his appetite, because the tissues, undernourished from failure to burn sugar, make an ever-increased demand for food. Thus a vicious circle is established, more food making more blood sugar, and more blood sugar a greater demand for food. He develops a pinched look from dehydration of tissues; the more he drinks the greater the polydipsia and polyuria. The mouth is dry, the skin unhealthy; frequently boils and carbuncles appear. The constant flow of urine causes eczema around the genitals, especially in women, with a tendency to pruritus, local or generalized. The vision may be affected, the patient becoming aware of an unaccountable dimness, due to retinitis or cataract. Constipation is always present to complete the unhappy picture of the diabetic.

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It is evident that the first problem of the sufferer is the finding of a satisfactory dietary regimen. Even since insulin treatment came into general use, this has always had to adapt itself to the diet as the basic factor, and not vice versa. In a large percentage of mild or moderate cases no insulin is needed. "One must juggle not the diet but the insulin," says John, till one finds the dosage which will maintain an approximately normal blood sugar content with a livable diet. No matter how well the blood sugar is controlled, if the patient is discharged on a diet insufficient to maintain his weight and energy the method has failed hopelessly. . . . One should plan a livable, not a starvation diet, so that the patient may hold his job; then instruct him in the routine he must follow if he is to maintain the best possible status."

The most important thing in the diet, according to Allen, is the total calories, rather than the individual components. Proteins are no longer discredited but may be used fairly liberally, provided there is no renal disease. Allen gives anywhere from 60 to 120 gm. per day according to the tastes of the patient. Of carbohydrates he gives not less than 50 gm. per day, and usually 80 to 100 gm. Just enough fat is given to make up the requisite calories; the high fat diet is no longer favored. If the total calories are kept constant there will be only slight variation in the insulin requirement, regardless of whether carbohydrate is kept down to 30 gm. or increased to 200 or 300 gm. per day. If, on the other hand, the total calories and bodily weight are increased by fat or otherwise, the amount of insulin required increases enormously. "The obese patient practically never requires insulin," says Allen, "because by reducing the weight to normal we change the diabetes to a mild form. Every diabetic physician should know how to calculate a weighed diet. It is best to undernourish all cases at the start, until the sugar and acetone are cleared up. Then increase the diet quickly or slowly according as the patient happens to be over or under normal weight. A diet on which the patient continues to lose is insufficient.

By regulating the diet and bodily weight the total dosage of

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insulin is kept as low as possible, and thus the total number of injections is kept low."

"The aim of every well directed dietetic regimen," says Modern, "is to approximate normal living conditions as closely as possible. It is not advisable to coddle the patient, but arrange the diet so as to make life comfortable for him. No uncomplicated case is an insulin case in the beginning. In every uncomplicated case treatment should be begun with a low calorie diet without insulin. If diets were carefully chosen and the generally obese patient reduced in weight, the tolerance as a rule improves remarkably and less than one-third of all cases require insulin. Loss of weight is nearly always desirable. Patients on as low as 600 calories a day may gain 3 to 4 pounds in 3 or 4 days, owing to the cessation of glycosuria and hyperglycemia. It is well to teach the patient how to perform the Benedict qualitative urine test and have him test the urine twice a day."

Once on a diet, whether or not under insulin, general hygienic care of the diabetic is very important. Skin elimination must be promoted by a daily hot bath; the teeth and tonsils must be well cared for to prevent infection. The patient must have plenty of sleep, must avoid chills and wet feet, worry and nervousness. He may take a vacation and travel, living as a man among men, but he must never fail to weigh his food and test his urine. A reasonable amount of exercise is a vital necessity. Muscular exercise tends to increase the power of burning carbohydrates. Constipation must be avoided by use of fruit free from carbohydrates, and vegetables, with non-nutritious agar or paraffin oil if necessary.

Ever since insulin treatment was made available to the world by Banting, attempts have been made to elaborate a product which might be suitable for oral administration. In view of the achievements in other fields of organotherapy it seemed that it might be possible to devise a form in which the island hormone could be made effective other than by the hypodermic route with its constant skin irritation, the care of the syringe, the danger of infection and the intolerable inconveniences attending this interruption of the day's normal routine.

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Physicians coming in contact with large numbers of diabetics generally concede that the irksomeness of regular hypodermic treatment is so great that a large number of patients would much rather suffer a moderate diabetic condition than submit to daily routine injections. Insulin so administered may answer all of the physician's requirements, but the unfortunate patient would pay any price to escape its disadvantages.

The irritant effect upon the skin and subcutaneous tissues consequent upon the continual use of injections is a perennial source of discomfort. Furthermore, there is some reason to believe that this constant irritation is responsible for an abnormal eosinophilia in diabetics.

In oral administration the problem of the clinician has been to find a means of getting the islet hormone safely past the gastric and intestinal proteolytic enzymes that threaten its inactivation and destruction in the alimentary canal before it can reach the blood stream.

The work of Banting and Best, begun in 1920, was based upon the hypothesis that since ligation of the acinous portion of the pancreas causes its degeneration but leaves the islet tissue unharmed, it would be possible to take advantage of this fact to obtain an active extract of the latter. As a corallary to this hypothesis they further assumed that trypsinogen or its derivatives was antagonistic to the internal secretion of the pancreas. They succeeded therefore in excluding this trypsinogenic (acinous) portion and found themselves able by intravenous or subcutaneous injections of the island tissue to produce a striking and consistent reduction of sugar in blood and urine. They found that the extent and duration of the reduction varied with the amount injected. They made many attempts to produce insulin in a form suitable for oral administration, but were never able to accomplish this.

Since then various methods have been tried in the hope of finding some easier mode of administration than that of hypodermic injection. But always the results have been unsatisfactory. Insulin introduced by mouth without protection from the gastric secretions was invariably found to be rapidly

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destroyed by the pepsin. The first problem was to find a way to get it past the stomach without inactivation.

Murlin and his associates tried enteric coated capsules and tablets coated with salol enclosed in larger gelatin capsules. In some cases the salol was not disintegrated. Their best results were obtained when there was placed in the capsules a harmless substance designed to delay the action of trypsin in the intestine in the immediate vicinity of the capsule when it went to pieces. It was also found that insulin protected by blood serum could be absorbed in significant amounts from the digestive tract.

Ottow concludes on the basis of her experiences that insulin is effective when administered orally, although it works more slowly than when injected subcutaneously. She further observed that the sugar in the urine disappears before a decrease in the sugar content of the blood occurs. No harmful results were noted.

The promising results of these recent experiments with regard to the oral administration of insulin have prompted the author to make a test of Oralsulin on a number of diabetic cases. Oralsulin according to the manufacturers, is an endocrine preparation embodying a special desiccation of the pancreas of young food animals, is rigidly standardized as to its insulin content and enclosed in a specially perfected capsule or enterocap which is so designed as to release the active ingredient in the intestinal canal.

Treatment was directed at the outset to the establishment of a livable diet supplemented by Oralsulin three to four times daily. The initial dose in all cases was Dosage A with Duodenal Substance which was increased to Dosage B at the end of one week. By making frequent urine and blood tests it was possible to make further increases in dosage until the proper dose for each individual case had been determined. The number and size of doses of Oralsulin necessary to bring about a fall in the blood sugar and to clear up the urine varies with each individual case. With control of dosage established, a more liberal diet may safely be allowed.

It was further noted in those cases undergoing insulin treat-

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ment in conjunction with Oralsulin, the blood sugar approached the normal much sooner, thereby making a decrease in the insulin treatment possible. No untoward effects were noted.

On the basis of the above experiments the author has reason to believe that Oralsulin therapy combined with Insulin has far greater possibilities for therapeutic success than insulin injections alone. In selected cases and by intelligent control, complete replacement of the hypodermic preparation should be achieved.

DIET LISTS

BREAKFAST

Fresh fruit only, or if more is desired, add dried sweet fruit or one of the following dairy products:

FRUIT		DRIED SWEET FRUIT
Fresh - Acid	*Fresh - Sweet*	Dates
Apples	Currants (Black)	Figs
Blackberries	Grapes	Raisins
Cherries	Mangoes	Prune (sweet)
Currants (red)	Peaches	
Gooseberries	Persimmons	
Grapefruit	Prunes (Sweet)	
Grapes		
Lemons	*Dried - Acid and Sub-acid*	
Limes	Apricots	
Loganberries	Apples	
Nectarines	Blackberries	
Oranges	Currants	*Dairy Products*
Pineapples	Peaches	Milk
Plums	Loganberries	Buttermilk
Raspberries	Prunes	Hot water with Milk
Strawberries	Plums	
Tangerines	Pears	Cottage Cheese
	Raisins	
Sub-acid		
Apples		
Apricots		
Cherries		
Elderberries		
Guavas		
Grapes		
Huckleberries		
Loquots		
Mulberries		
Peaches		
Plums		
Prunes	Mellons combine with nothing except other fruit.	
Pears	Fresh fruit combines with anything except starch.	

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LUNCH

One concentrated starch (cooked), one or two cooked non-starchy vegetables, and one raw vegetable.

Pure olive oil (on salad)

Starch	*Cooked Non-Starchy Vegetables*	*Raw Vegetables*
Potatoes (white)	Artichokes (French)	Cabbage
Potatoes (sweet)	Asparagus	Carrots (grated)
Yams	Beets	Chive
Artichokes (American)	Beans (fresh green)	Endive
Bread or cereals made from the whole grain of	Cauliflower	Garlic
Wheat	Carrots	Leeks
Corn	Celery	Lettuce
Oats	Corn (green)	Onions
Barley	Cow-slip	Olives (ripe)
Rice	Egg-plant	Peppers (sweet)
Rye	Garlic	Parsley
	Okra	Radishes
	Onions	Scallions
	Peas (fresh green)	Water Cress
	Pumpkin	
	Parsnips	
	Peppers (sweet)	
	Rutabagas	
	Squash	
	Salsify	
	Turnips	

Cooked Greens

Beet-tops
Brussels sprouts
Chive
Dandelions (young)
Dock (sour)
Kale
Leeks
Mullein
Rutabaga-tops
Swiss Chard
Spinach
Turnip-tops

Eat no starch with acid fruit, tomatoes, or rhubarb.

Absolutely necessary to combine raw vegetable with starch.

Moderate amount of dairy butter necessary.

DINNER

One meat or meat substitute, one or two cooked non-starchy vegetables, and salad of either uncooked fresh fruits or raw vegetables.

If legumes are eaten instead of meat at this meal, substitute the raw vegetable salad for fruit, and avoid tomatoes.

Cottage cheese is a good substitute for meat.

Meats	*Cooked Non-Starchy Vegetables*	*Uncooked Fruit Salad*
Beef	Artichokes (Fresh)	Apples
Lamb	Asparagus	Grapefruit
Ham	Beets	Grapes
Game		

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Fowl
Fish
Shell-Fish
Eggs

Meat Substitutes

Milk
Cheese
Nuts
Legumes

Legumes

Dried Beans
Dried Peas
Lentile
Peanuts

Beans (Fresh Green)
Cauliflower
Carrots
Celery
Corn (Green)
Cow-slip
Egg-plant
Garlic
Okra
Onions
Peas (Fresh Green)
Pumpkins
Parsnips
Peppers (Sweet)
Rutabagas
Squash
Salsify
Turnips
Tomatoes

Cooked Greens

Beet tops
Brussel Sprouts
Chive
Dandelions (Young)
Dock (Sour)
Kale
Leeks
Mullein
Rutabaga-tops
Swiss Chard
Spinach
Turnip-tops

Oranges
Pineapple
Apricots
Peaches
Prunes
Pears

or
Raw Vegetable Salad of

Carrots (Grated)
Celery
Chive
Endive
Garlic
Leeks
Lettuce
Onions
Olives (Ripe)
Peppers (Sweet)
Parsley
Radishes
Scallions
Water Cress
Cabbage

It is necessary to have raw fruit with meat.

DR. C. C. MOYAR.

Mild Cases of Diabetes

MAY TAKE FREELY

MEAT AND FISH: Broiled, boiled, steamed, baked, roasted: steaks, chops, roast beef, game, chicken, brains, broiled tripe, lamb, turkey, marrow, caviar, fresh fish.

VEGETABLES: Spinach, cauliflower, lettuce, celery, tomatoes, carrots, string beans, cabbage, water cress, eggplant, asparagus, rhubarb (unsweetened), ripe and green olives.

BEVERAGES: Water, mineral water, tea, coffee, cream.

SUNDRIES: Clear soup or bouillon, nuts, almond biscuit.

MAY TAKE IN MODERATION

MEAT AND FISH: Fried food; salt, preserved, canned and spiced meats; tongue, goose, duck, kidneys, stews, ham, bacon, shell-fish; salt, preserved and canned fish.

VEGETABLES: Garlic, onions.

FRUITS: Fresh fruit: apple, pear, peach, orange, cherries, lemons, grapefruit, plums, persimmons, apricots, berries.

BEVERAGES: Alcoholic and acidulous drinks.

SUNDRIES: Condiments, such as catsup mustard, tabasco; meat and cream soups; oatmeal.

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AVOID

MEAT AND FISH: Liver and sweetbreads.
VEGETABLES: Vegetable roots and tubers—corn, beets, dry beans, potato.
FRUIT: Grapes, figs, prunes, dates, raisins.
BEVERAGES: Malt drinks, sweetened drinks, chocolate.
SUNDRIES: Syrups, sugar, pies, pastry, confectionery, made dishes containing sugar; cereals, bread.

NOTE TO THE PHYSICIAN

The five menus tabulated on these cards meet the varying caloric requirements of diabetic patients and will help you in the treatment of those patients who are unable to calculate their own diets. The patient may vary these menus at will by using various fruits and vegetables of similar carbohydrate content (as listed on the back of the cards). Such substitutions will relieve the monotony of the daily diet.

FOODS LISTED ACCORDING TO CH VALUES

VEGETABLES

1% - 3%	3% - 5%	10%	15%	20%
Lettuce	Tomatoes	Pumpkin	Artichokes	Potatoes
Cucumbers	Brussels	Turnips	Parsnips	Shell Beans
Spinach	Sprouts	Squash	Lima Beans	Baked Beans
Asparagus	Water Cress	Beets		Green Corn
Rhubarb	Kale	Carrots		Boiled Rice
Endive	Cauliflower	Onions		Boiled Macaroni
Marrow	Egg Plant	Green Peas		
Sauerkraut	Cabbage			
Swiss Chard	Radish			
Mushrooms	String Beans			

FRUITS

Ripe Olives	Strawberries	Raspberries	Plums
Grapefruit	Lemons	Currants	Bananas
	Cranberries	Apricots	Prunes
	Peaches	Pears	
	Pineapple	Apples	
	Blackberries	Blueberries	
	Oranges	Cherries	

1 gram protein—4 calories.
1 gram carbohydrate—4 calories.
1 gram fat—9 calories.
30 grams—1 ounce.

DAILY MENU FOR DIABETIC PATIENT OF AVERAGE TOLERANCE

Total Calories—889.

BREAKFAST	Carbohydrates *grams*	Proteins *grams*	Fats *grams*	Calories
Coffee	0	0	0	
1 small helping oatmeal	6	2		
1 small orange	10			
4 tbsp. cream (20%)	2	2	12	
½ tbsp. butter			6	
1 soft boiled egg		6	6	
	18	10	24	328

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DINNER				
2 strips crisp bacon		3	8	
2 heaping tbsp. spinach	3	2		
5 stalks buttered asparagus	4	2		
Small size tomato salad with vinegar	4	1		
1 tbsp. butter			18	
	11	8	21	265
SUPPER				
2 strips of crisp bacon and 1 egg (shirred)		9	14	
1 small helping stewed tomatoes	3	1		
2 heaping tbsp. baked eggplant	3	1		
1 average size lettuce salad with lemon juice	2			
1 small helping pineapple	10			
½ tbsp. butter			6	
	18	11	20	296
DAILY TOTAL	47	29	65	889

SUGGESTED MENU FOR DIABETIC PATIENT

Total Calories—1201.

	Carbohydrates *grams*	Proteins *grams*	Fats *grams*	Calories
BREAKFAST				
Coffee	0	0		
Half Small Orange	5			
1 large helping Oatmeal	20	5	2	
1 Egg w. 2 strips bacon		8	14	
4 Tbsp. cream (20%)	2	2	12	
Half tbsp. butter			6	
	27	15	34	474
DINNER				
Roast Beef—lean, small helping		11		
String Beans—avg. helping	5	1	1	
Cauliflower—avg. helping	3	1		
Water cress w. vinegar	4	1		
Apricots	13	1		
Butter—1½ tbsp.			18	
	25	15	19	331
SUPPER				
Egg Omelette w. 2 strips crisp bacon		9	6	
Celery—avg. helping	3	3	8	
Cabbage—avg. helping	3			
1 Tomato—sliced	4	1		
½ tbsp. butter			6	
Lemon jello, sweetened with saccharine	2	2	12	
	12	15	32	396
	64	45	85	1201

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DIAGRAM 1. CARBOHYDRATE CHANGES IN THE BODY

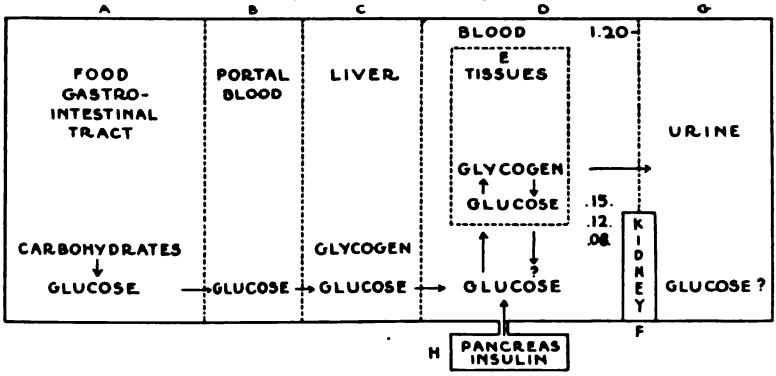

DIAGRAM 2. DIABETIC ACIDOSIS

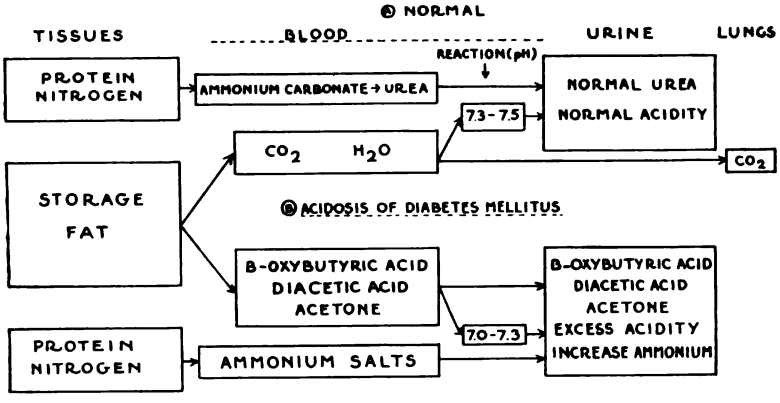

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DIAGRAM 1 represents the course of carbohydrates through the body. The term carbohydrates is here used to include starch and sugars and, as well, the carbohydrate yielding portion (58%) of proteins.

Section A. The total carbohydrate of food. Changed largely into glucose in the alimentary tract.

Section B. The glucose absorbed into the blood of the portal vein.

Section C. The glucose received by the liver from the portal blood. This may be stored as glycogen.

Section D. The glucose of the general circulation, received from the liver, in health present to the amount of 0.08 to 0.12% (fasting specimen).

Section E. The glucose of the tissues received from the blood in whose plasma they are bathed. This may be stored as glycogen, and oxidized, as required, through the presence of insulin (H), acting as an "ignition spark," yielding heat and energy. In the absence of insulin (diabetes mellitus) the glucose returns to the blood where it accumulates and raises the blood sugar, in severe diabetics to 1.2% or more.

Section F. The kidney threshold which holds back the blood sugar up to 0.15% (sometimes 0.18 or 0.20% in old diabetics) above which the glucose passes from the blood into the urine.

Section G. The urine into which glucose passes when the accumulation in the blood is above the kidney threshold, constituting diabetic glycosuria (or glucosuria). Obviously, the degree of glycosuria is determined by the quantity of carbohydrate ingested in the food and the ability of the tissues to oxidize glucose, determined by the supply of insulin.

Section H. The pancreas which supplies insulin to the blood, the deficiency of which constitutes the fundamental cause of diabetes mellitus.

DIAGRAM 2 represents certain of the chemical changes in the body incident to the occurrence of acidosis in diabetes mellitus. The upper portion of the diagram represents the changes that are normal; the lower portion changes in diabetic acidosis.

It will be noted that normally the oxidation of storage fat yields carbon dioxide and water while protein nitrogen is converted into ammonium carbonate and then into urea, as which these end products are eliminated. The complete oxidation of the storage fat is rendered possible by the accompanying oxidation of glucose.

When, owing to insulin deficiency, the glucose oxidation is deficient (diabetes mellitus) then the utilization of storage fat of the body is increased, the oxidation is incomplete and there is formed B-oxybutyric acid which gradually changes to diacetic acid and finally the acetone. When the production of B-oxybutyric acid is considerable, the transformation into acetone is incomplete and all three of the so-called acetone bodies are eliminated in the urine, as indicated in the diagram.

The presence in the blood of these acid end products tends to diminish the alkalinity, as indicated by the lower blood pH. In the effort to prevent this reduction of blood alkalinity, the ammonium from protein metabolism combines with the acids and is thereby diverted from conversion into urea and is eliminated in the urine, thus increasing the output of urinary ammonium.

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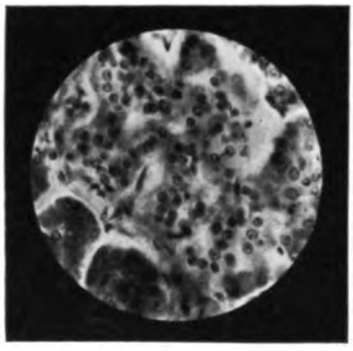
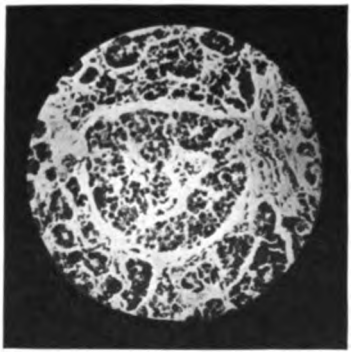
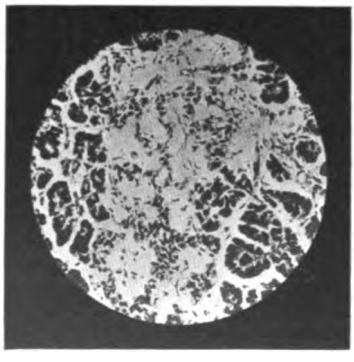


HYALINIZED AREAS
SHOWING CELLULAR
CHANGES
IN DETAIL



NORMAL ISLAND
OF LANGERHANS CELLS
PRODUCING INSULIN
REQUIRED BY
THE BODY



ISLAND OF LANGERHANS
SHOWING ATROPHY AND
DISAPPEARANCE OF THE
INSULIN-PRODUCING CELLS

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Vocational Therapy in Life

By Donald Macfarlan, M.D.

What may be appropriately "dubbed" vocational therapy has a very pertinent bearing upon each and every member of each community. That cross section of populace attaining a majority of its members, performing in life, in his or her calling "that thing" best suited for their temperament and type of mind and body is at once the most happy and the most effciently useful cross-section in the state, at large.

It matters little what the calling may be as long as it suits. The person thus suitably employed, literally sings at his work, is constantly striving to perfect the thing so close to his heart, and if left to pursue in peace what he may be doing, bears a most happy relation to every man, woman, and child, with whom he may come in contact.

In medical practice, a due consideration of the above is often of signal service. Advising a change of avocation may even effect a cure when nothing else will. It is a good thing, and like every good thing it is good from all angles; just as a poor thing is poor from all angles.

If this factor is observed, the ever present occupies exclusively the mind, and the future is a dead thing in the same sense that the past is. Of all peoples in the Universe today, the French nation alone, seem to be the only ones existent who really act in the pleasant present, and who hence seem to get the most out of life.

It is a matter of regret, however, that we, as Americans, have not learned this altogether praiseworthy lesson from the French, and have been woefully remiss in this very thing.

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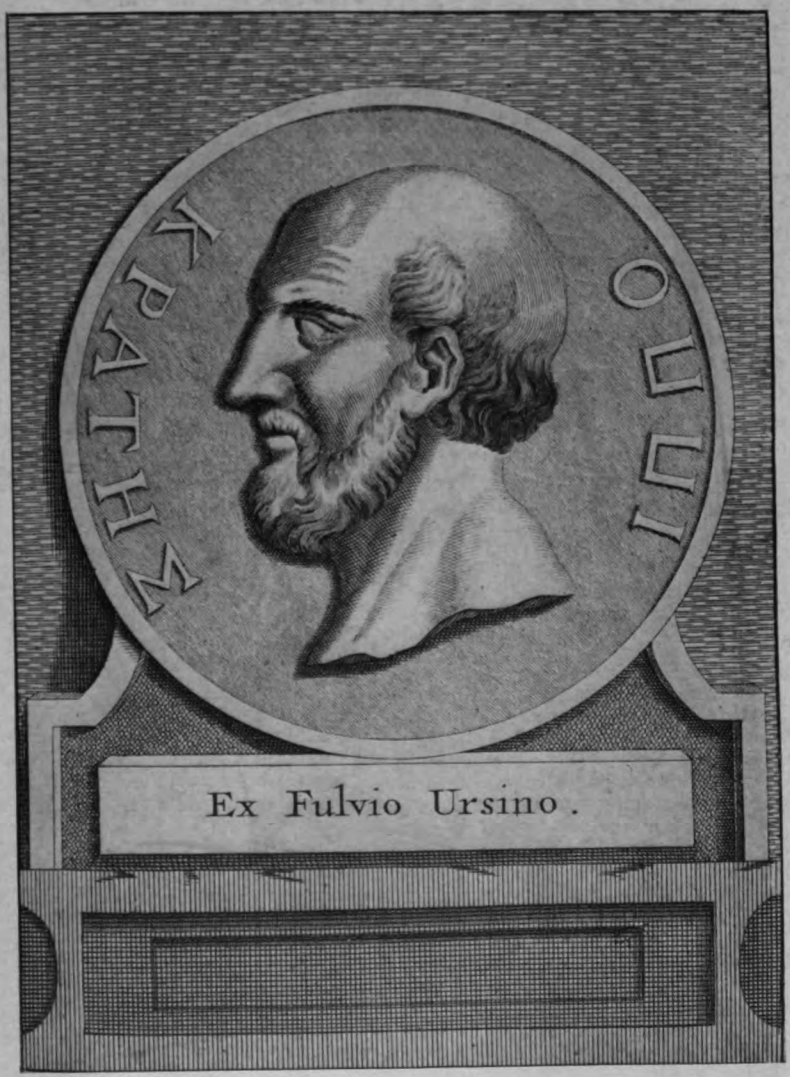
MEDICAL REVIEW OF REVIEWS

420th Issue November 1930



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MEDICAL Review of Reviews

Foundation of Journal: The Medical Review of Reviews was founded in 1895 by Daniel Lewis, M.D., M.A., Ph.D., LL.D., Professor of Surgery, New York Postgraduate Medical School and Hospital; Commissioner of Health, State of New York (1892-1904); President, New York County Medical Society (1884-86) and Medical Society of the State of New York (1889); Vice-President, New York Academy of Medicine (1896). The Medical Review of Reviews was the first medical journal in America to devote itself to abstracts and to publish a monthly Index Medicus. These features became unnecessary and were eliminated when numerous periodicals added abstract departments and the American Medical Association began the publication of the comprehensive Quarterly Cumulative Index Medicus. The Medical Review of Reviews is now devoted to original contributions on general medicine and public health.

Amalgamation of Journals: During its career, the Medical Review of Reviews has absorbed these five journals: Southern Medicine, Therapeutic Medicine, Journal of Pediatrics (founded 1895 by Dr. Dillon Brown), Buffalo Medical Journal (founded 1845 by Dr. Austin Flint), and Archives of Therapeutics.

Medical Sociology: The Medical Review of Reviews, one of the first journals to recognize the relationship of medicine to social problems, produced Eugene Brieux's Damaged Goods, Frank Wedekind's The Awakening of Spring, Gerhart Hauptmann's The Weavers, and various other social dramas and films. This phase of the journal's activity was under the direction of its publisher and managing editor, Frederic Hugo Robinson (1890-1923).

Contributors: The many distinguished physicians and surgeons of the past who have contributed to the Medical Review of Reviews include: Abraham Jacobi (1830-1919), Daniel Bennett St. John Roosa (1838-1908), George Ryerson Fowler (1848-1906), Roswell Park (1852-1914), Byron Robinson (1854-1910), John Veitch Shoemaker (1858-1910), Heinrich Stern (1868-1918), and Sir James Mackenzie (1853-1925).

Exclusive Publication: Manuscripts are considered for publication upon condition that they are contributed to this journal exclusively.

Manuscripts: Manuscripts should be typewritten, double-spaced, with ample margin, mailed flat; the ORIGINAL is to be sent and the author should preserve the CARBON. Authors should read their manuscripts carefully before submitting them for publication. Unsolicited manuscripts should invariably be accompanied by return postage.

Publications: Notable contributions to these pages include, among many others, Sir James Mackenzie's Cardiac Signs; J. F. McClendon's Hydrogen Ion Concentration in Physiology and Medicine; Victor Robinson's Landmarks in Pharmacology, Autobiography of the Tubercle Bacillus, Medicine under King Mike, and American Medical Biography; various essays by Havelock Ellis; Mary Ware Dennett's Sex Side of Life; and James P. Warbasse's protest against the military conscription of youth. I. L. Nascher, the founder of geriatrics in America, established in this magazine the first department devoted to diseases of the aged. Among the books bearing the imprint of Medical Review of Reviews are the first editions of Victor Robinson's Pathfinders in Medicine, and Essay on Hasheesh; and Christabel Pankhurst's Plain Facts about a Great Evil. The journal has published various symposia, and also special numbers, including the Psychopathology Number which was prefaced by Sigmund Freud.

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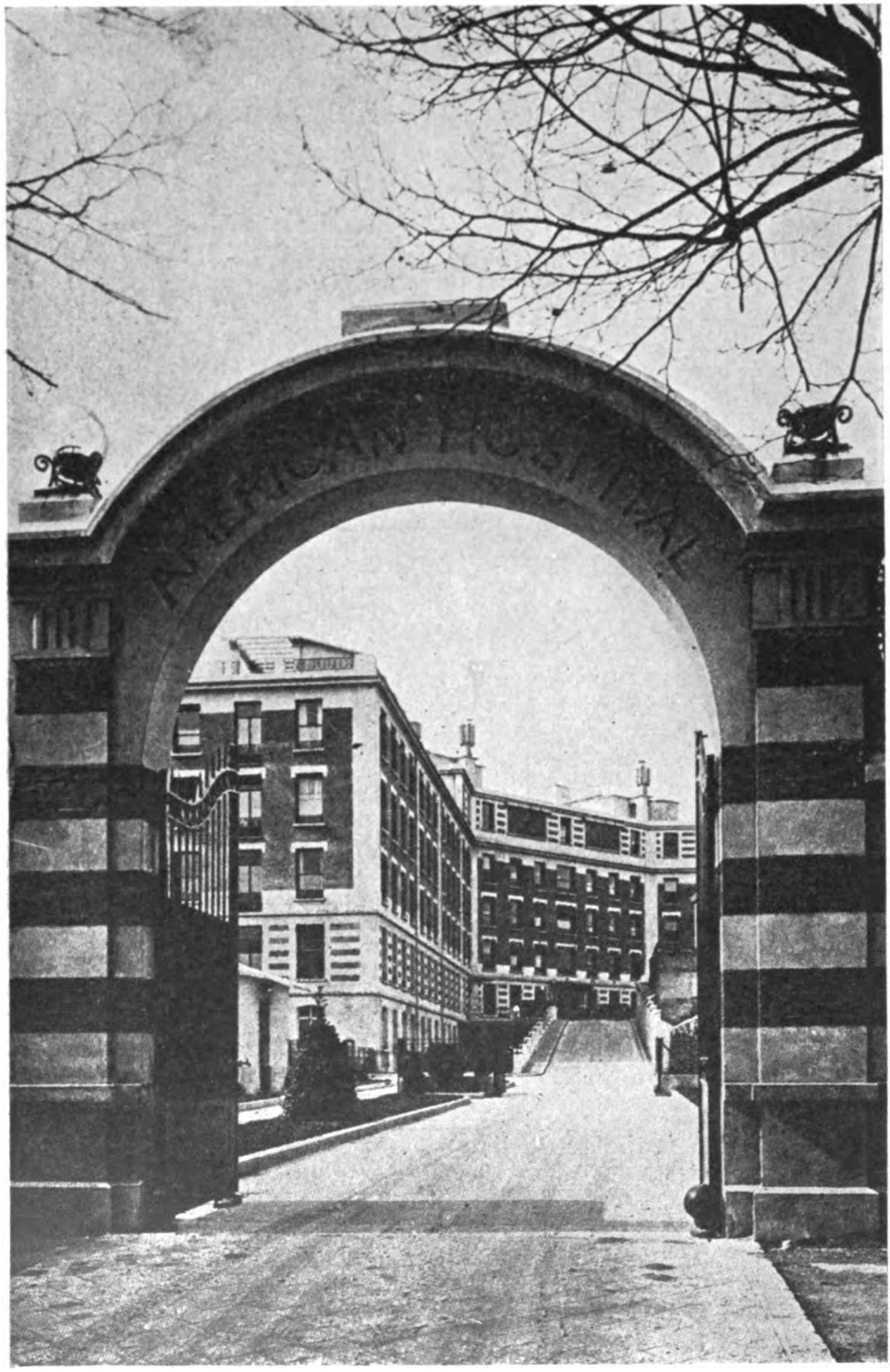

THE AMERICAN HOSPITAL OF PARIS
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A Medical Woman Looks Again at the American Hospital of Paris

MARY MCKIBBIN-HARPER, M.D.

In the summer of 1929 I arrived late one evening in Paris on my way home from an inspection of the American Women's Hospitals in Greece and Turkey and taxied out from my hotel the next morning to arrange for flying to London that afternoon. In a few minutes I was catapulted through the glass in front of me by a collision. How or why I know not, but what seems always imminent in Paris traffic had happened to me most inopportunely, as I was due in Edinburgh at a meeting the next morning.

While gendarmes arrested the voluble and protesting chauffeur and the gathering crowd volunteered irrelevant and immaterial information the passenger was forgotten. However, I gathered myself out of the broken glass and escorted by a gendarme made my sanguinary way to a nearby drug store.

Here I vehemently refused the first aid which the French always render at drug stores; demanded sterile gauze with which to replace and hold the lobe of my left ear and insisted upon being taken at once to the American Hospital 63 Boulevard Victor Hugo, Neuilly-sur-Seine. Enmeshed by red tape, the gendarme moved slowly but eventually we escaped from the insistent druggist, the curious and sympathetic children and innocent bystanders and were soon passing under the portal of that haven—the American Hospital.

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One's ideas of heaven change from time to time. Mine had long been divorced from my "grandmother's illusions" of gilded interiors, angels preening wing feathers and new arrivals practicing harp lessons, but at this particular time this hospital was heaven to me. No St. Peter kept the gate requiring credentials. The pass word was "American." The American language which I had neither heard nor used for several days was more musical than cherubim or seraphim; the white-robed nurses were ministering angels; the surgeon was a practical saint.

After an inventory of cuts and bruises, the resident physician, Dr. G. S. Terry (from Richmond, Va.) replaced the ear lobe with neatness and dispatch.

The gendarme lingered with his voluminous note book until I came from the operating room to learn the extent to which I had *not* been injured. Parenthetically, I learned a good deal about French law in the next few days. About all that one may hope to recover after a taxi collision in Paris is his temper and possibly his health.

For some months I wore a purple ear which gradually faded off into a lovely violet. At the end of the year it is hardly a poetic alabaster but certainly matches the other one.

It was thus that I revisited the American Hospital of Paris. I spent five months in Paris in 1925 looking at things medical and wrote an appreciation of the hospital at that time. Now I write gratefully and feelingly as one who has received its beneficent service at a time of temporary but dire distress. In 1925 when I visited the first hospital, the new one was nearly completed.

The American Hospital of Paris was founded by American residents and doctors to provide a suitable place for the medical treatment of Americans traveling or living in Europe.

Americans travel in Europe every year by hundreds of thousands. The number of Americans living abroad cannot be definitely known but it is conservatively estimated that the American colony in Paris alone numbers from twenty-five to thirty thousand.

The over-crowded hospitals of Paris—indeed the hospitals of all Europe are charitable institutions for the poor, and are therefore, not open to Americans nor have those in Paris been

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open to American wives of Frenchmen even when in need. American patients were formerly cared for at hotels or at a *maison de sante* which is much like the English Nursing Home, often the small clinic of one doctor, and like it is of all grades of excellence. Hospitals in which luxurious accommodation may be paid for and one's own medical attendance chosen are found only in America. The need of a hospital in which care equal to that received in our hospitals at home is answered in the American Hospital of Paris which is the only permanent hospital on the continent built for the care of Americans.

The American Hospital of Paris was planned in 1904 and incorporated under French law in 1906. The site of the first hospital was purchased in 1908, the hospital opened to patients in 1910 and incorporated by United States Congress in 1913. There was accommodation for ten private and ten ward patients, but this subsequently increased to twenty-two private and ten ward patients. However, at times forty or fifty have been crowded in, and there was often a long waiting list. The hospital and out-patients numbered 2,787 in 1924.

The first hospital, though inadequate in size, was recognized throughout Europe and the United States as a model institution of its kind, and was celebrated, not only for its service to Americans in Europe, but for the great accomplishment of organizing and conducting the famous American Ambulance Service during the war. When the United States entered the world conflict this hospital was turned over completely equipped, becoming American Military Hospital No. One. When the invader was at the gates of Paris and others fled, the men and women in this hospital worked on undauntedly.

In 1921, a spacious, well-wooded property adjoining the present hospital was purchased, on which to erect a model hospital ample to accommodate all Americans who might apply. This new building, begun in May, 1922, was dedicated as a memorial to the services of the men and women of the American Hospital and the American Ambulance during the war. It was opened January 30, 1926, and the inauguration ceremony was on May 12, which is known in America as "National Hospital Day." The Memorial Hospital has one hundred and twenty

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beds, including eight private maternity rooms, a maternity ward and a creche.

It contains three operating rooms and every modern feature and convenience. Every room has the sun a part of the day, and a wonderful system of mechanical ventilation has been installed.

The building is of reinforced concrete and brick with stone facade. The central part is five stories high and the wings four stories, with pergola roof gardens on each for convalescents. The estimated cost of the finished, fully equipped hospital was $1,000,000.00.

The new building, a practical and fitting memorial to American men and women who served in the great war, the pride of Americans living in Europe has been made possible by the generous contributions of resident and traveling Americans. French friends have given unsolicited donations and there have been gifts from friends of other nationalities.

Although the hospital is for the exclusive use of Americans, by a ruling of the Board of Governors a certain category of rooms in the Hospital may be placed at the disposal of nationals other than American but only when ample accommodation is assured for Americans. King Alexander of Jugoslavia, one of the most interesting foreign patients in the last year, expressed his gratitude by decorating members of the staff, in the royal manner of Balkan Kings.

The Robert Bacon Endowment Fund—named for a former French Ambassador to France, is a surplus collected for the American Ambulance by a committee of women in the United States, of which Mrs. Robert Bacon was chairman. Another endowment fund invested in American securities is the John H. Harges (of Morgan Harges, Bankers) of $30,000.00, and other general and bed endowment funds are held by J. P. Morgan & Co.—$106,000.00.

Mr. and Mrs. Wm. K. Vanderbilt contributed the money to build the nurses' home. Memorial beds and rooms have been taken by many wealthy Americans. Among these I noted the Jay Gould Room, taken by his daughter Anna, the Duchess of Talleyrand; Helen Gould's name also appears; a Memorial Room by Joseph E. Widner; a Life Bed to William Thaw of

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Pittsburg by the Comtesse de Perigny; a Perpetual Bed in Memory of General William Franklin Draper, by Princess Boncompagni; and many others. Many of the endowments are reminiscent of daughters of American millionaires who have married French titles.

The will of the late John B. Warden of Philadelphia, who died at sea in November, 1929, coming home from France, provides that four million dollars will go ultimately to the American Hospital of Paris.

Endowments and dedications of rooms and beds are recorded on bronze plaques affixed in the main entrance hall of the Hospital.

The rates in this hospital are lower than the rates obtaining in the United States for corresponding accommodations. Under its charter, the Hospital cannot be run for profit and rates are therefore made as low as possible. More than 20% of the patients occupying beds are charity cases treated free of charge, and others, because of their inability to pay the regular rates, are treated at a minimum charge considerably below actual cost. No charge is made for the work done for dispensary patients, of whom there were 9,032 in 1928.

That there has been a constant growth of the hospital work is attested by the fact that in 1922 only 1928 patients were treated. The number steadily increasing until 1928 the number was 11,300.

The Board of Governors of which Hon. Walter Edge, our present Ambassador is Honorary President, and Mr. A. K. Macomber is President and the Medical Board with Dr. Edmund L. Gros, Chief, Dr. George M. Converse, Secretary and Dr. Harry Plotz, of the Immunity Laboratory of Pasteur, Treasurer are aided in administration by the Advisory Board in America consisting of forty leading physicians and surgeons in various parts of the United States.

The Board of Governors is elected by the members of the Hospital of Paris. Any adult American citizen, or any adult woman of American origin married to a foreigner, or the husband of any American woman, or the wife of any American citizen, who shall have contributed to The American Hospital of Paris, a sum of not less than $20.00 or its equivalent, shall

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become a member of the American Hospital of Paris for twelve months from date of contribution. Any such person who shall have contributed in any one year to the American Hospital of Paris a sum of not less than $500.00 or its equivalent, shall thereupon become a life member of The American Hospital of Paris.

Any member of The American Hospital of Paris is entitled to vote at the annual election of Governors of The American Hospital of Paris.

The internes, etc., are selected in the United States by the Advisory Board and must be American born. A system of rotation of internes is in force by which after three months' service an interne may have valuable experience in other clinics Paris in 1346 F St., Washington, D. C.

The regular attending staff is headed by Edmund Gros, M.D., Stanford University, also of Faculte de Paris, Officier de la Legion d'Honneur, Croix de Guerre, Lt. Col. U. S. A. The most eminent medical men of Paris are numbered in the regular attending and consulting staffs. One hundred physicians practicing in Paris have been admitted to practice in the hospital by passing the examination of the Medical Board. The House Staff consists of the Resident Physician and five internes.

A woman, Dr. Simone Moissonnier, at the head of the laboratory, as she was on my previous visit, is a graduate of Faculte de Medecine and of Pasteur Institute. Madame Francillon-Lobre, who is one of the best known women physicians of Paris, is a consultant in gynaecology.

Mr. G. A. Trube the efficient director of works and business manager and Miss Ruth Ware, Superintendent of the Hospital, who received me in 1925 so cordially and were so helpful about my former sketch, were still in the hospital in 1929. Mr. Trube whose very recent resignation was received with great reluctance, has been succeeded by Mr. C. Claflin Davis whose training and experience have eminently fitted him for such a position. Miss Ravina, Superintendent of the operating room, was the only one remaining in the Nurses' Training School, since 1925.

Plans are now on foot for building a new and modern Nurses' Home and Training School. The old hospital which is being used cannot be satisfactorily repaired. The Hospital

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itself is again inadequate. There is crying need for wards and low-priced rooms to satisfy the demands of small salaried Americans for cheap room accommodations. A new wing composed of such rooms has been suggested to be dedicated to the memory of the late Myron Herrick who always manifested the keenest personal interest and untiring devotion to the hospital.

The right of the Hospital to increase property value from $2,000,000.00 to $8,000,000.00 has been granted by Congressional Act.

This hospital in which the very atmosphere of efficiency and cheerfulness which pervades it has therapeutic value is one of which all Americans must be proud. No infectious diseases nor troublesome mental cases are received and the time of chronic cases is limited to three months.

I found it almost a pleasure to wait in the pleasant library, well supplied with English and American books and American periodicals, even with a surgical dressing in prospect. This de luxe hospital is beautifully situated in gardens of flowers and easily accessible, being only a mile from Porte Champerret. Paris is also easily accessible from all parts of the Continent, and the hospital offers a compromise to Americans who falling ill, have had only the one idea of getting back home and have made the voyage unadvisedly.

The Hospital is now offering another service. It is completing the organization known as "The American Hospital of Paris Affiliations"—extending to all large cities of Europe. This organization will offer to traveling Americans widespread medical security.

"Staffs of prominent physicians, surgeons and specialists, as far as practicable English-speaking, and approved by the Medical Board of The American Hospital of Paris, are being established in each city amongst the best local physicians. The uniform name 'The American Hospital of Paris Affiliation' will be found in each local directory, so that any American falling ill and knowing of no physician, will not be at a loss to obtain the best medical advice available in that locality. The telephone number in the directory will be that of the President of the American Hospital of Paris Affiliation of that city, and

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through him, suitable physicians, surgeons or specialists may be procured without delay."

Still further kind provision is made for the traveling American in the card of the American Hospital which may be obtained by any American. It provides an insurance of proper medical care in unconsciousness or in sudden illness or accident and may upon occasion be useful to one who speaks no French.

CARRY THIS CARD WITH YOU AT ALL TIMES

NOM:.....
(Name)

ADDRESSE:.....
(Home Address)

.....

Photo

Citoyen Américain, je désire, en cas d'accident, être transporté d'urgence à

L'HOSPITAL AMERICAIN DE PARIS
63 Boulevard Victor Hugo, Neuilly-sur-Seine

Only those who have the experience of falling ill in a foreign land can possibly know just what such an institution means. The Atlantic grows proportionately wider and deeper as disability increases. The psychology of loneliness, isolation and desolation must often be more difficult to relieve than the physical disease.

The American Hospital in Paris with its true American hospitality and the *lange maternelle* is a real refuge in such times of illness and anxiety.

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The Transformation of Pathogenic Microorganisms

By S. K. RAMSINE, M.D.
Central Hygienic Institute, Belgrade, Jugoslavia.
(*Translated by Dr. E. C. Piette, Oak Park, Ill.*)

The transformation of pathogenic microorganisms alters either their shape or their size. The latter comprises not only the changes visible under the microscope but also ultramicroscopic forms, invisible virus, passing through the bacteriological filter. The filtrates of the bacterial cultures which until recently were considered to be sterile, avital products are in reality, according to numerous experiments in various laboratories, potentially alive, because they may contain ultra forms of the original microorganism and may, in certain instances, be cultivated in vitro or in vivo.

The investigations in this direction are numerous and a summary of the entire literature is not our purpose. Only a few of the outstanding papers can be mentioned.

Fontes[1] was the first to obtain a new type of tuberculous virus from the filtrate of tuberculous material. After an interval of thirteen years his results have been substantiated and have aroused the intense interest of bacteriologists, particularly those of the French school, Vaudremer,[2,3] Hauduroy and Vaudremer,[4,5] Arloing and Dufourt,[6] Bezancon and Philibert,[7] Valtis,[8] Calmette, Valtis, Negre and Boquet,[9] etc.

When pulverized into filtrable forms the tubercle bacillus changes markedly its pathogenic and biological functions.

E. Almquist[10] was among the first to obtain in vitro filtrable forms of the typhoid bacillus. Observing the changes in shape under certain conditions, Almquist[11] offered a theory of relationship between the typhoid-colon group and the mycoses assuming that the globoid forms are similar to the conidia whereas the elongated threads of bacteria correspond to the mycelium.

Friedberger and Meissner[12] discovered an invisible noncultivatable variety of the typhoid bacillus. This variety, cryptoantigen, persists only in vivo, retaining specific pathogenic functions. This invisible virus is present in the brain of the infected guinea pigs and when this brain is inoculated it causes

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a typical disease of ten to fourteen days duration while the temperature rises to 40° C. The genetic connection of this virus with the typical typhoid bacillus was established by Friedberger inasmuch as the inoculation of guinea pigs with the invisible virus immunizes them against multiple lethal doses of the typhoid bacillus.

Hauduroy[13,14,15,16,17] was able to obtain in vitro ultramicroscopic modifications of the colon, typhoid, paratyphoid, dysenteria group. He used bacteriophage of d'Herelle to produce the pulverization or dispersion of the microbes mentioned and the obtained ultramicroscopic forms penetrated the bacteriological filters. He claims that these ultramicroscopic modifications exist not only in vitro but also in the diseased organism as well as in the outer world.

Own Experiments with Streptococcus

In spite of careful preparation of the Dick toxin we repeatedly observed the appearance of growth either in the toxin itself or in a subculture inoculated with the toxin. For observation[18] we used the hemolytic streptoccocus of Dochez and several strains of local scarlet fever streptococci. They were inoculated upon the blood broth left in the incubator for five to six days and filtered through the new Chamberland (F) filter under low pressure. The young, 12 hours old, culture of aviseptic bacillus was used at the end of filtration as a control for the integrity of the filter.

The toxin obtained was inoculated on dextrose broth which always remained sterile for two to three days. Then the toxin was used for active immunization according to the directions of Dick. About two percent of the children inoculated developed scarlet fever. A certain number responded with a local or general reaction. No streptococcic infections were ever observed, which proves the absence of virulent streptococci in the filtrate. And yet we were able to prove the presence of live forms in the filtrate, forms that slowly developed into streptococci.

The dextrose broth subculture of the filtrate left at room temperature shows after several days or weeks a granular or amorphous sediment. Microscopically it consists of larger Gram positive granules and very small, hardly visible Gram

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negative grains. By keeping it on ice longer, at 6 to 8° C., or at room temperature, one notices the formation of a mycelium, the grains being located on the threads. On subsequent subcultures, first on liquid media, then on blood agar, we were able to reconstruct a true streptococcus which at first is non-virulent or is pathogenic for mice only. After this animal passage we were able to recover on blood cultures taken from the perished animal a non-hemolytic or viridans streptococcus.

This reconstructed streptococcus is agglutinated by the immune serum of rabbits which were inoculated with the original streptococcus and vice versa: the serum of rabbits immunized with filtrable streptococcus agglutinate the hemolytic streptococcus of Dochez. The ultra forms of streptococcus are more resistant in regard to the antiseptics (phenol 1.5%) and physical agents (60 to 75° C.) than hemolytic streptococcus.

Thus one gains the idea that a toxic streptococcus may exist in two modifications: a microscopically visible pyogenic streptococcus of low resistance and high toxicity and a very resistant, invisible ultraform of low toxicity. The Dick toxin from this viewpoint must be regarded as an albuminous fluid with suspended ultraforms. The filtrability of the streptococcus modifies and fortifies our present conception in regard to the etiology of scarlet fever, uniting the advocates of the causative role of streptococcus and the adherents of an invisible filtrable virus.

After having published in April, 1926, my data on the filtrability of the streptococcus of scarlet fever I found that in December, 1925, Alice Evans and Walter Freeman[19] reported on the filtrability of the streptococcus of epidemic encephalitis. Their filtrable invisible virus of encephalitis and the green streptococcus were, according to their experiments, genetically related, representing different phases of the same microorganisms.

My experiments with the filtrable streptococcus were substantiated by Sedaillan and Gaumond,[20] by Hauduroy[21] and Lesbre, M. Rashkovska,[22] etc. Urbain Ach[23] discovered filtrable forms of the streptococcus of horse looseness. Out of eighteen various cultures of this streptococcus, after seven to fifteen days of incubation, in four of them appeared small grains, single

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and in pairs, both in the filtrate and in the inoculated broth. Inoculation of these grains caused in mice lethal streptococcus septicemia.

Observing the filtrable forms of the streptococcus one notices that they may give in the first generation of the filtrate not only the above described grains which develop into the streptococcus, but also abnormal forms, such as elongated cocci, bacilli and spirils. Experimenting with the known pure cultures of the hemolytic streptococcus, thoroughly tested on toxicity, uniformity of the colonies and of the microscopic appearance, I in co-operation with Dr. Zyvcovycz found that the alkaline media are particularly favorable for the transformation of a streptococcus into the bacillary forms. Optimal media are those rich in blood with PH=7.5—7.8. We used blood broth controlled for sterility during seven days and inoculated with a pure culture of a hemolytic streptococcus of Dochez. After ten to twelve days of incubation one notices the appearance of spirilloid and bacillar forms with polar granulation which stains after Neisser. These bacilli morphologically resemble diphtheria bacilli.

When using broth with PH=8.1 inoculated with the above mentioned streptococcus and incubated for ten days one notices along with the typical streptococci and the bacillary forms also large spheroid formations which were described by German authors as zygospores and which were also observed by Mellon[24] in the bacteria of colon-typhoid and diphtheria groups. The subcultures of these forms give a rather complex microscopic picture: one observes the above described spheroid spore-like forms, thin needle-like bacilli and branching forms. In the broth with PH=6.8 and 8.6, inoculated with the same culture one does not observe any of the quoted changes.

We were able also to observe the transformation of the streptococci into bacillary forms on firm medium, blood agar. The typical small hemolyzing round smooth colonies acquired irregular contours, a rough surface, and lost their hemolytic property. This is analogous to the dissociation of the cultures as described recently by English and American authors, De Kruif,[25] Arkwright,[26] etc. They observed microscopically in these colonies mixed cultures of streptococcus and diph-

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theroid forms. Along with cocci in chains they described elongated cocci, short wedgeshaped bacilli and longer bacilli with a thickening at one pole. These latter stain irregularly and resemble diphtheria bacilli. Microscopic observation established the genetic relation of the bacilli with the typical chains of streptococci, the subsequent appearance of the transition forms from cocci to bacilli with the final emancipation of the bacilli. Thus the changes demonstrated the evolution of streptococcus.

The appearance of bacilli in the pure culture of streptococci was apparently first described by Arloing and Chantre,[27] in the late nineties. Kermorgant[28] described abnormal bacillary forms of streptococcus with granules similar to diphtheria bacillus and also as cocci of various size distributed either like sarcina or like micrococcus melitensis. According to Kermorgant the bacilli may break into cocci which segregate in typical chains of streptococcus. Mellon[29,30] proved repeatedly that it is possible to transform pure cultures of diphtheroids isolated from a single bacterial cell to diplococci which during the process acquire new characters that are essentially those of streptococci.

The diphtheroid bacilli obtained in my experiments by the transformation of streptococci on liquid and solid alkali media were studied morphologically, biochemically and from the standpoint of their toxicity. As was mentioned before the streptococci in bacillary shape lose their hemolytic property and are inactive in regard to sugars, just like pseudodiphtheritic bacillus. They are avirulent when injected into the animals. Thus the microscopic change of a streptococcus into a bacillus is associated with a loss of biochemical activity and virulence. In the acid liquid media with PH=6 we were able to retransform the bacillary forms into cocci.

In order to complete the cycle of transformation of hemolytic streptococcus into diphtheria bacillus we needed to obtain true diphtheria bacillus possessing specific toxicity. All the attempts of transformation of the streptococcus into bacillary forms along the pathway of microscopically visible forms ended with in an avirulent diphtheroid bacillus. Therefore I decided to investigate the ultramicroscopic modification of the streptococcus.

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In a successful experiment published in 1928,[21] I inoculated 5,000 cc. of blood broth (PH=7.5) with a broth culture of the streptococcus hemolyticus of Dochez and forty-eight hours later added a culture of streptococcus hemolyticus of scarlet fever, strain "Belgrade III." Both streptococci were preserved in pure cultures for several years and served for the preparation of Dick toxin. This mixed streptococcus culture was kept for five days in the incubator, being energetically shaken daily. Afterwards the broth was filtered through the Chamberland filter L III with subsequent control by the culture of aviseptic bacillus. I inoculated this filtrate on dextrose broth which remained apparently sterile for three days and then showed the appearance of sediment consisting of small granules and elongated cocci. This material was placed in the incubator for 51 days. By this time the surface of the culture was covered with a mucoid crust with suspended stalactites. This crust consisted of diphtheroid forms. The subsequent blood agar culture resulted in the appearance of slightly orange colored colonies, one of which was transplanted into Martin's broth. This growth was not unlike a typical culture of true diphtheria, but still displayed mucoid character. On the eighth day of incubation 0.1 cc. of this culture was inoculated subcutaneously into a guinea pig 350 grams in weight. The animal died in 48 hours, with a quite typical pathological picture of diphtheria intoxication. Subsequent transfers from broth to broth resulted in the growth of a typical diphtheria bacillus with characteristic growth on the surface. Biochemically and morphologically the bacillus obtained was identical with the diphtheria bacillus. The toxicity of the culture was D.L.M.=0.01 cc. and we were able to neutralize this toxin completely with a stock antitoxin of Behring in experiments on guinea pigs.

The old culture of this diphtheria bacillus produced cloudiness in the broth and on smears appeared as short bacilli, coccobacilli and diplococci. Upon inoculation into a guinea pig they caused fatal septicemia with hemolytic streptococci in the blood stream and in the organs.

This experiment, proving the close relations of two bacterial forms, explains the clinically observed manifestations of the post scarlatinous diphtheria, scarlatina alba. By com-

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bining our findings with the well known investigations of Morgenroth[32] and his school regarding the transformation of the streptococcus into pneumococcus, substantiated by the one cell cultures of Rosenow,[33] we can establish the following chain of genetic relations. Streptococcus hemolyticus can be transformed into streptococcus viridians and, further, into pneumococcus with all its varieties. On the other end of the chain we may now add the diphtheria group.

A possible objection, that our experiments were not based on the technic of one cell culture, is out of order because we used filtrate which did not contain a single bacterial cell, yet it gave rise to a culture possessing new biological properties and morphological appearance.

Our Experiments with Gonococcus

In our search for another subject that would display some transformation tendencies we,[35] in collaboration with Dr. Miloshevich, decided to investigate gonococcus, this being a microorganism notoriously sensitive to biochemical agents as well as to the products of old cultures. In the literature gonococcus is credited during involution to assume a different appearance: macrogonococcus (Le Soudier and T. Verge[36]) microforms and ulfraforms (Herzog), bacillus-like, x-shaped forms (Lawrinowicz, Sirotinin, Korobkowa[37]), spirillum-like (A. Cohn[38]) and a Gram positive form (Kandyba[39]); the latter occurs particularly often and has attracted particular attention from the standpoint of variability of the gonococcus. Delbanco and Lorentz,[40] also Wichmann and Schlunk[41] often found these Gram positive diplococci clinically in cases of chronic gonorrhea, but so far their genetic relations had not been established.

Old cultures of gonococcus frequently shows an atypical appearance, which however, is lost in subsequent transfers. In order to age or ripen the organism we used a filtrate of old cultures, some of which were repeatedly inoculated with gonococcus up to the point where they were not suitable for any further growth. They were tested for sterility for several weeks. Then an acid broth medium with 20% of these filtrates was inoculated with eleven strains of gonococcus. From these eleven inoculated strains only four grew, belonging to old laboratory

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strains. Every fifth day the cultures were transferred to acid broth with increasing amounts of filtrate, up to 50%. In the fourth and fifth generations the culture assumed atypical mucoid character and microscopically Gram positive monococci and diplococci appeared. Farther on the cultures of four strains consisted purely of Gram positive cocci with a quasi capsule. In the first generations, like the gonococcus this Gram positive coccus does not grow on ordinary media and becomes accustomed to them only in later transfers. It ferments glucose, levulose, maltose, and saccharose in 2 to 3 days, attacks lactose and mannite but slowly, is a facultative aerob, nonpathogenic for mice, is not agglutinated with gonococcal immune serum at all or but lightly. One of these four strains, however, was agglutinated in sufficiently high dilutions.

In order to establish more firmly the relations of this microorganism with the typical gonococcus we tried a backward process, rejuvenation. By rapidly transferring it every 12 to 24 hours to new acid broth, PH=7.2-7.4, we were able to revert it again in five generations into an original gonococcus with its typical sugar splitting properties. Its agglutination titer was but slightly lower than that of the original culture. Not resting here we were able to revert once more four strains into a Gram positive and two of them once again into a Gram negative typical gonococcus.

Among the people participating in the investigations and interested in the results were volunteers who consented to an inoculation by both the Gram positive diplococcus obtained as described before, from the gonococcus, and by the retransformed gonococcus. The first strain after being injected into the urethra did not produce any noticeable clinical manifestations. The second strain caused after three days of incubation, an acute gonorrhea with typical gonococci on the smears and cultures. This gonorrhea was promptly cured by an abortive treatment.

Afterwards Miloshevich[42] continued this work on clinical cases. Examining the material from a case of chronic gonorrheal prostatitis he obtained Gram positive intracellular diplococcus and isolated a similar microorganism from a case of subacute gonorrheal urethritis. These two strains were rapid-

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ly transferred on ascites broth. The first strain assumed the typical appearance of a gonococcus after 22 passages, the second, after 5 passages.

Thus it appears that we are dealing with a reversible modification of gonococcus. Quite an interesting feature in our experiments was the action of the filtrates upon bacteria. They apparently possess not only bactericidal properties but also transform the original microorganism into a new modification. Therefore the beneficial clinical results of local application of a filtrate after Besredka might be interpreted as being due not only to its bactericidal and but also to its transforming influence.

By examining the colonies of gonococcus we were able to establish here, as in other microbes, two types of colonies; the colonies of type R (rough, irregular in outline and rather opaque) and the S-type (smooth, transparent, with round edges). The R colonies contain modified gonococci; here one frequently finds Gram-labile and Gram-positive micro-and macrococci, elongated gonococci, etc. The examination of S and R colonies resulted in the isolation of orthogonococcus, i.e. gonococcus which does not grow on medias without native protein:

(a) GC of Neisser—Gram negative, breaks dextrose.
(b) GC atypical—Gram negative, does not break dextrose.
(c) GC atypical—Gram labile or posit., breaks dextrose.
(d) GC atypical—Gram labile or posit., does not break dextrose.

Lehmann and Neumann[43] have described these gonococci that are inactive in regard to dextrose. The tinctorial changes of the gonococcus from Gram negative to Gram labil or Gram positive may occur spontaneously in old cultures and particularly upon the influence of specific filtrates. Another important characteristic displayed by a gonococcus upon the influence of a filtrate is its ability to grow on ordinary media. This is associated with cardinal changes in the metabolism of a gonococcus cell: orthogonococcus, is transformed into metagonococcus. This is frequently associated with loss of glucose breaking property. I have observed my strain "75.0" which grew for 27 generations upon an ordinary agar and which, being transplanted upon the dextrose agar, did not attack it

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even after 7 to 10 days of incubation. The same gonococcus being transformed upon the media with ascitic fluid acquired in the first generations the ability to split the dextrose energetically, even more so than a normal typical gonococcus, and along with it acquiring normal agglutinability. The virulence of the "75.0" was repeatedly tested upon the urethra of the volunteers and inoculation never resulted in any clinical symptoms. All the experiments as to the virulence were made under the control of the dermatological clinic of the University of Belgrade (Prof. Georgievicz).

A modification of the gonococcus "75.0" is biologically very similar to the micrococcus catarrhalis, being a transitional form from orthogonococcus to metagonococcus, the latter being characterized by its resistance to bile. Bile represents a good and reliable medium for the differentiation of the gonococcus modifications. The strain "75.0" obtained from the ordinary broth is four times more bile resistant than the same strain obtained from the ascitic broth, this latter is again about four times more resistant than the original strain "75.0."

Upon subcultures of the "75.0" we were able to isolate a new modification "75.0.m" which is identical with metagonococcus: it grows on pure bile, forms a membrane on the broth surface and slight opacity; it is inactive towards sugars; amphophil upon Gram straining; appears as mono-and diplococcus. On ordinary agar it forms a luxurious growth of half transparent confluent colonies and displays serological affinity to micro- and macrococcus catarrhalis.

The group of metagonococcus could be incriminated in causing urethritis similar to gonorrheal. Along with the avirulent saprophytes which form a group of metagonococcus there are also virulent races of micrococcus catarrhalis and macrococcus. In co-operation with Dr. R. Kotur I presented[44] cases of acute blenorrhea caused by this group. Winfield[54] described a group of nongonorrheal urethritis, seven of which were caused by micrococcus catarrhalis. The urethritis which are caused by races of metagonococcus are transmitted, like real gonorrhea, per coitum and their incubation is similar to gonorrhea.

There is another group of microorganisms genetically related to metagonococcus and gonococcus which is designated as

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paragonococcus. These microorganisms energetically split sugars. They are quite unstable biochemically and serologically and are represented by diplococci amphophil after Gram and are designated by me as diplococcus mutans. I distinguish the following three types of diplococcus mutans:

Diplococcus mutans I —Splits dextrose, lactose, does not split maltose.
Diplcoccus mutans II —splits dextrose, lactose, maltose.
Diplococcus mutans III—Does not split dextrose, splits lactose and maltose.

Diplococcus mutans I was isolated from a case of acute urethritis which clinically and microscopically presented typical gonorrheal character. In the first generations this microorganism developed very poorly or not at all on ordinary agar. Its colonies were round, smooth, rather large and more opaque than those of gonococcus, their microscopical appearance quite resembled gonococcus. During cultivation for four months on various media the diplococcus became accustomed to the ordinary agar and changed its fermentative functions as shown above, being transformed first into type II and subsequently into type III, the latter being bile resistant.

Microscopically and tinctorially this diplococcus displayed frequent variations, being either Gram negative, positive or amphophil. This amphophilism was mentioned previously in regard to the orthogonococcus and metagonococcus. However, it has been previously described repeatedly in connection with other bacteria (Mellon[45]). Its immunological properties were also variable, thus the immune sera anti-D mutans displayed complement fixation and agglutinated some gonococci and metagonococci strains, particularly those varieties of orthogonococcus which display a slight and inconstant ability to split levulose. The genetic connection of the D. mutans with the gonococcus was also established by the cultivation from the diplococcus mutans III, a variety of mono- and diplococcus which was inactive to sugars and identical with metagonococcus.

The diplo- and monococci with active sugar splitting properties, which could be united in one group, include a so-called diplococcus dispersus. This microorganism morphologically resembles paratetragenes zoogleicus. It forms small granula-

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tions, debris, and differs from diplococcus crassus (Jaeger-Heubner) by the absence of the lactose splitting ferment. In addition to these two representatives here also belongs another Gram positive diplococcus of various dimensions which is a constant inhabitant of a normal or pathological urethra. It ferments dextrose, levulose, maltose, saccharose, lactose and mannite but does not split the esculin in the medium of Rochaix in contrast to the enterococcus. This coccus is frequently taken for staphylococcus albus but it can be always distinguished from the latter by means of the polyvalent antistaphylococcic bacteriophage of Gratia and thus separated from the staphylococcus into the family of Sarcinidae in which Enderlein[46] places gonococcus and meningococcus.

So far little attention was apparently paid to the sarcinae as causative agents of urethritis. Walter Karnin[47] described a case of urethritis caused by a Gram positive diplococcus which belonged to the group of sarcina and in smears was located intracellularly. From the above outlined standpoint of pleomorphism of the bacteria one can connect into one family the above described representatives (probenogeny of Enderlein). The genetic relations of the orthogonococcus, meta- and paragonococcus could be considered as proven by the experiments of reversible transformation. The genetic relations among the other members of the family await proof in further experiments. In my laboratory Dr. Komlik was able to cultivate from a Gram positive sarcina which was obtained from an old culture of gonococcus after passing the culture through the bile the following variations in succession: a Gram labile coccus, coccobacillus, a Gram negative coccobacillus and finally a Gram negative diplococcus, microscopically identical with gonococcus which fermented only the dextrose, displayed but feeble growth on ordinary agar and grew on ascitic broth without causing opacity. This microorganism was easily agglutinated with the specific antigonococcus sera.

The gonococcus and its derivatives represent an excellent object to prove the transformation of bacteria, genetically connecting the avirulent saprophytic forms with the pathogenic microbes. Cyclogenic varieties of sarcinae help us to penetrate into the mystery of the origin of the pathogenic microorgan-

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isms. The study of the urethral flora along this line may produce important results from a practical standpoint. The study of the biology of gonococcus gives us data which help to unite separate biological individuums into a single genetic system.

So far bacteriology has been describing newer and newer species. In the future one sees a way in the opposite direction the union of these manifold bacteria into genetically related forms, a way for synthetic bacteriology.

Summary

Streptococcus filtrate-toxin (Dick) contains filtrate ultramicroscopic modification of streptococcus and may produce experimental scarlet fever.

The transformation of hemolytic streptococcus into diphtheria bacillus is an accomplished fact.

The gonococcus is amphophilic after Gram. There is a genetic relation between the virulent orthogonococcus of Neisser and the saprophytes of the urethral flora with metagonococcus and with paragonococcus. The family of sarcinae comprises all these groups.

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Havelock Ellis at Seventy

By Isaac Goldberg, Ph.D.

On February 2nd of this year the friends of Havelock Ellis in the various corners of the world celebrated, in a quiet, Ellisian manner, the seventieth birthday of the sage. The numerous pursuits in which those friends engaged was in itself testimony to the many sides of life to which Ellis has brought his healing touch; poets, scientists, journalists, suffragists, advocates of the nudity cult, pioneers in sexual freedom, physicians . . . a motley train, at odds perhaps with one another on this point and that, forgot their differences in paying tribute to a focal admiration. Women beheld in him one of the powerful forces that have made for the liberation of womankind from the fetters of an enervating conventionalism. Less effusively than they may have wished, they brought him thanks for what he had taught men about them and for what he had taught them about men. The men of the laboratory, professing indifference to aesthetic values, praised him for fearless investigation; for persistence in the face of obloquy; for the slow triumph of a scientific ideal. He had brought sex down from the clouds, and into the beneficient sunlight. He was, so they said, primarily the scientist, untramelled by emotionalized thinking and lucidly objective in reporting his results. He was, replied the men and women of the pen, primarily the artist; who had better understood the problems of the creative spirit, and who had better phrased them in such germinal essays as *The New Spirit* and *Affirmations?*

Havelock Ellis remains both the scientist and the artist. To that life which so many of us perceive as fragments he has helped to restore a sense of wholeness. The conception may easily become unhealthily mystical, dissolving into a wordy nebula; Ellis has kept in the health and has kept out—except for the inevitable personal overtones—the mysticism. Early he made his peace with life, and so doing, conquered it. His parents, in their very temperaments, seemed to have dowered him with a rounded vision; from his mother he must have received the more sober aspects of his character, while from his

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father, a sea captain, came the sense of humor and the appetite for adventure. His mother, indeed, would have had him enter the Church; when he displayed ambitions to study medicine, however, she offered no opposition to his plans. Captain Ellis, an admirable husband, had an eye for the girls; one cannot imagine him weeping at the refusal of his son to take holy orders.

Yet, in a deeper sense, Ellis did not disappoint his mother. There is something in his writings that suggests a free, a secular church, with the walls removed so that wind and light may shed their benediction upon the service. Ellis distinguished between theology and religion, or, to avoid the risk of misinterpretation, between dogma and the desire of man to explain the mystery of existence. He knows the difference between softness and sentimentality, and is too wise to believe that man can find happiness in scorn of the emotions. He is the artist because he would use those emotions for their connotations of beauty and ecstasy; he is the scientist because he distinguishes between the truths of fact and the truths of that ecstasy. Why choose rigidly between two fundamental types of experience when, with the proper understanding of their relationship, we may profit by what each has to contribute to fuller living? It is the same Ellis, after all, who wrote *Man and Woman,* the seven volumes of *Studies in the Psychology of Sex,* the *Study in British Genius* on the one hand, and on the other, that too-little-known idyll, *Kanga Creek,* and the collection of delicate cameos entitled *Impressions and Comments.*

At the same time that Ellis was saturating himself in literature he was pursuing his medical studies. This may have been, in part, a program; in part it was also a necessity. He originated, during this period, the *Mermaid* series of Elizabethan dramatists; to run parallel with it here was soon the *Contemporary Science Series,* likewise the idea of Ellis. His right hand always knew what his left hand was doing.

Perhaps a word of explanation concerning Ellis's status as a physician will be helpful here. In 1889, he passed the Licentiate of the Society of Apothecaries; the Society has long held the right to grant medical qualification. It was this same examination that Keats had passed, only that in his day there

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were not included surgery and midwifery. Ellis, then—and, for that matter, Keats, who has so long been erroneously described as an "apothecary"—left St. Thomas a full-fledged physician. I do not believe that he is fond, however, of being addressed as "Dr." Ellis. Yet for a time he engaged in practice and, when abroad with his sister Louie (recently deceased) and Arthur Symons in Paris, he visited the hospitals and clinics, and followed with especial interest the lectures and demonstrations of Charcot.

These days before his thirtieth birthday are, of course, the foundation of his contributions to sexual psychology; yet hardly less important are his contemporaneous ramblings among the literati of Lutecia. Are not the sexual studies, in fact, with their insistence upon love as an art, as much poetry as science? Their method is a commentary upon the man: from one aspect they appear as a solid accumulation of data; from another, as a human interpretation and integration of the factual heap. It is one of the glories of the man to have liberated life *for* sex and, by that same token, to have liberated life *from* it. In other words, by restoring sex to its place in living, Ellis served to restore a sense of proportion which has yielded to the hysteria of inhibition and repression. He looked the Gorgon in the face and lo, he was not petrified. No one was ever turned to stone for looking at a Gordon; for, had he really looked, he would have seen that it was not there.

This is the central service of Ellis to his age; for the moment I am not concerned with demonstrating the validity of a theory, but with indicating certain social effects. To Ellis and to Freud, more than to any other investigators of the present day, is due the new sanity in the discussion of sex and its ramifications into the individual and the group life. Between them, they all but shattered a taboo. As Ellis, abandoning the Church, found a whole world awaiting his ministrations, so Ellis, giving up the practise of medicine, left a smaller circle for a greater. It is an old tale now that, whereas the early priest performed the functions of the doctor, the modern doctor begins to assume certain functions of the priest; he diagnoses, that is, not merely the physical man but the psychic, treating not only a symptom but an individual configuration.

I am not so sure as once I was that it is possible to see life

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steadily and to see it whole. I am not so sure that it is possible to consider life, according to Spinoza, in the light of eternity. To behold it thus for an instant might be maddening; what, indeed, is anything *sub specie aeternitatis?* Let us rather behold existence in the light of ephemerality as well, the better to savor its fleeting ecstasies. In Ellis, as we may expect, we find both these views; he seizes the day, with Herrick, and with the philosophers he harmonizes the days with the generations. None so deeply as he has felt the dynamic radiance of living, yet none so simply as he has dwelt in life-long repose. That sea which his ancestors sailed in quest of adventure serves as the symbol of his living: eternal restlessness within eternal rest; changelessness within everlasting change. He has loved the sea with the quiet passion of one who had fairly circumnavigated the globe before his seventh year; it is in his blood and in his memory. He writes, as by preference he has always written, on hillsides and beaches, with wide horizons and brine in his eyes. He is the least "bookish" of men and is surrounded, even when at work, by a minimum of volumes. The breath of the open is in his pages.

The mirror of the man, indeed, is in his prose. It is a prose of subtle rhythms, achieving its effects without sensationalism or the more legitimate condiments of style. Soft cadences are frequent; the pulse of his prose, indeed, is poetic, except in those works that are primarily informational. Ellis is not the man to flourish *obiter dicta,* yet again and again one comes upon paragraphs so excellently phrased that it would seem impossible to express them in different language. Only yesterday, indeed, a book was compiled containing selected passages from his writings; so sound was the unity of his thought that the compilation was easily rescued from the status of a mere anthology. The importance of Ellis as a pioneer in the investigation of sex has served to obscure his importance as a writer of English prose. His quiet daring—has anyone in his time been more quiet in his work, and at the same time more courageous in facing its full implications?—has allowed even many critics of letters and the arts to overlook his sober virtues as an essayist. It would not surprise me if Ellis, in the history of contemporary English literature, were eventually to figure as one of the finest essayists of our epoch.

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His style is the man: simply, fundamental, firm yet plastic, leisurely, sinewy, placid. Perhaps, in the quietude of Ellis, there is something deceptive; the stillness is the stillness of waters that run deep. His wife, Edith, a resilient, social temperament, serving as an admirable contrast to his reserve, wrote of him with penetration; to her it seemed that his outer repose was won at the cost of many inner conflicts. Olive Schreiner used to lose her patience at the seeming impassivity of her friend Havelock. Yet it would be wrong to regard the man as cold. A shelf of books throbbing with passion for a finer humanity stands as ready refutation of the charge.

Yet something in Ellis still resists, as much as did the younger man, intimate contact with the world. An artist friend, just arrived from Italy, and never having looked before upon a photograph of Ellis, gazed at the picture on my wall one afternoon and said to me, with a puzzled air, "Here's a man who's hard to *reach*. It would be difficult to paint his portrait. His mind is a retreat." Yes, a retreat, but not surely a withdrawal of escape. Ellis's withdrawal is that of the artist who, desiring to view his canvas in the proper light, steps back from it the better to see it. His motto, as I have said before, might have derived from Hauptmann's *Indipohdi:*

> Leave me to pass my days in solitude.
> Removed from life, I am to life the nearer.

It is not the only way; it is Ellis's way, however, and it is a way that we should all be the happier for adopting as an occasional change from the life called active.

To the medical profession a wider knowledge of Ellis's works would bring at once a more scientific and a more artistic appreciation of the motives that rule men and women in their groping after happiness. Health, after all, is but a means to ends without which we cannot be at peace with ourselves. *Mens sana in corpore sano* is a beginning, not a completion. Did not the word sound too much like "service" as used by laundry companies and other such useful institutions, I would say that Ellis, besides being a physician, is a *psychician*. Health, etymologically, is related to *wholeness*. And it is the sense of wholeness, of integrity, that Havelock Ellis, above any other spirit of his generation, has won back for humanity.

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Uses, Abuses and Dangers of Forceps in Obstetrics

By Joseph S. Diasio, M.D.

An interesting and gratifying indication of progress in medical science is the vast improvement in prenatal care, which has resulted in a most substantial reduction in the mortality and morbidity of both mother and fetus.

It must, however, be candidly admitted that much of the saving of life which has been effected by improved prenatal care has been offset by the number of lives lost during labor. The fact that 20,000 women die every year in the United States as a result of childbirth is a terrible stain on the escutcheon of the medical profession, and every serious cosideration should be given to ascertaining the cause of this shocking mortality, and what means can be adopted to reduce it.

In my opinion a very great proportion of this loss must be attributed to operative procedure during labor, much of it entirely unnecessary, and it is deplorable to have to state much of it unskillfully performed.

The forceps operation is the one most frequently undertaken, especially by the general practitioner. Even in the hand of the skilled obstetrician, an increase in the number of instrumental deliveries is generally followed by an increased morbidity and mortality. It is therefore obvious that an increased number of instrumental deliveries by inexperienced practitioners must increase the death rate of mothers and infants to a much greater degree.

A large number of labor cases are handled by the general practitioner, and the question arises: does he take the necessary steps to acquire the skill for this important operation? It surely goes without saying that every labor should be carefully studied and watched, and not interfered with until the proper indications manifest themselves, and that then the forceps should only be handled by those possessing the requisite skill.

I do not think it can be too strongly put to the general practitioner that the necessity for the use of forceps must be paramount before it is undertaken, and that the more seldom

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he uses them the better it will be for both mother and infant. Again, the general practitioner should never hesitate whenever it is possible to summon to his assistance a colleague who by natural ability and experience, has acquired more skill in the manipulation of the forceps than himself.

Indications for Use of Forceps

The obstetric forceps is an instrument designed for the extraction of the child in vertex presentations, and on the after-coming head of breech presentations. Its chief functions is to make traction, while a subsidiary purpose is that of rotation, which however should only be performed by an obstetrician.

It is a fact to be deplored that many physicians employ forceps as a routine measure in delivering their patients—firstly, because they are busy and cannot afford to leave their offices for too long—secondly, on account of their limited knowledge of the correct handling of labor, and thirdly, because they are not conversant with the true indications for forceps operation. On the other hand there are many conservative physicians who only resort to the use of the forceps when the patient is exhausted. Both these extremes are bad and we must seek for the middle course which can safely be followed.

The most frequent indication for the use of forceps is primary uterine inertia where the pains have been weak from the beginning, and where the progress is slow or absent after the full dilatation of the os.

DeLee states that 75% of all forceps deliveries are performed for insufficiency of the uterine powers after the cervix is completely effaced and dilated, and the head rests on the perineal floor.

Greenhill claims that in the majority of these cases a forceps operation can be avoided by making an episiotomy and asking the patient to bear down, or by using the Kristeller[1] expression to help her. We therefore recommend those general practitioners who are familiar with the procedure, to perform an

[1] Expression of the child by force applied to the fundus uteri through the abdominal wall, the fingers of the two hands being behind, and the thumbs in front, and the force exerted during a uterine contraction.

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episiotomy when the head rests on the perineum for more than one hour after complete dilatation of the cervix, and then have recourse to the use of forceps.

Another indication for the use of forceps is maternal distress during labor. Such complications as approaching exhaustion shown by rising temperature and pulse but associated with pains, suitable presentations and fully dilated os, phthisis, cardiac disease, eclampsia where there is a vertex presentation with the head engaged and labor delayed, and acute illnesses, such as pneumonia, call for the elimination of the second stage. Here again the simplest procedure is to use forceps. In these cases local anaethesia should be used instead of general anaesthesia, for the latter adds considerably to the hazard to which the mother is exposed.

Still another indication for a forceps delivery is fetal distress which, regardless of the cause which may be abruptio placentae, prolapse of the cord, etc., is manifested by slowing or a marked increase in the rate of the fetal heart beat, and passage of meconium in cases other than breech presentations.

Forceps are also employed in cases of moderate disproportion or generally contracted pelvis, flat pelvis where the conjugate vera is more than 8.5 c.m. and where there is an absence of excessive lateral obliquity.

Cases of persistent occiput posterior and of deep transverse arrest where the sagittal suture comes to lie transversely and does not rotate any further are best treated by means of forceps with or without aid of manual rotation. In our experience with cases of deep transverse arrest we have always obtained better results with the aid of manual rotation before the application of forceps.

In passing a word may be said regarding De Lee's "prophylactic forceps" operation which means the delivery of the child by means of an episiotomy and forceps after the head has come down on the pelvic floor and has completely rotated anteriorly. The purpose of thi stype of interference is fourfold: (1) to reduce the muscular and nervous strain of the second stage of labor; (2) to save the pelvic floor and adjacent pelvic fascia from overstretching; (3) to save the woman's blood; (4) to save the baby's brain from evil results of prolonged compression and

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congestion ex vacuo. De Lee advocates this procedure for the obstetric specialist only. We concur with De Lee in his objection to general adoption of this procedure, since we have seen only too often the disastrous results following the use of "prophylactic forceps" in the hands of the inexperienced.

Prerequisites for Forceps

There are certain conditions which must be fulfilled before a forceps operation can be performed. *First,* the cervix must be completely effaced and dilated or at least sufficiently so to permit easy extraction of the head. Forceps delivery before full dilatation is liable to cause deep cervical lacerations.

Secondly, there must be no cephalopelvic disproportion, although borderline cases should be given a fair test of labor. The borderline cases should be hospitalized so that if need for a Caeserean section arises, a competent obstetrician can promptly perform it.

Thirdly, presentation should be vertex or after-coming head. It is absolutely important that the head should be engaged or nearly so. I can not emphasize as strongly, as I would like, that forceps should never be applied to a head which is floating above the inlet. The fetal mortality attending forceps operations of the "Floating head" is 100% with the general practitioner and not much less even with the obstetrical expert. For this reason I consider it safer and better obstetrics to perform a Caeserian section than to attempt a difficult high forceps operation.

Fourthly, pains must be present. Never extract a child in the absence of pains (secondary inertia), for there is grave danger of atonic postpartum hemorrhage.

Fifthly, the membranes must be ruptured.

Sixthly, the bladder should be emptied by use of a catheter before applying forceps.

Lastly, the child must be living. In case of a dead baby it is better to do a craniotomy unless its head is visible at the introitus and forceps delivery promises to be very easy.

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Abuses

The art and practice of obstetrics and gynecology have taught us that the indiscriminate use of any medication or procedure is always attended by unpleasant and grave consequences. Therefore it is evident that the physician who uses forceps as a routine procedure in his obstetrical practice will indisputably increase the fetal mortality and maternal morbidity and sometimes even add to the maternal death rate. From a vast hospital experience as well as a busy private practice, we have found that this statement cannot be controverted.

Some of the flagrant abuses of the obstetric forceps encountered in practice may be grouped under the following headings: (1) absolute cephalopelvic disproportion evidenced by unengaged head above the inlet in a satisfactory second stage. If forceps are applied only injury to the mother and death to the baby are to be expected; (2) an undilatable or imperfectly dilated cervix which is a first stage complication should not even suggest a delivery by forceps, since the latter is only a second stage measure and should never be applied before the second stage. In addition, the tractile force required for the advance of the head by forceps before sufficient dilatation of the cervix is not only brutal, but is likely to cause lacerations which may spread deeply into the broad ligament causing hemorrhage and cellulitis and even death; (3) unruptured membranes contraindicate the immediate use of forceps, since the physiological purpose of the amniotic sac is the dilatation of the cervix and of the passages in "paving the way" for the presenting head. This occurs in the first stage and if during the second stage the advance of head does not occur and operative interference is required, the membranes should be ruptured before the application of forceps; (4) inexact knowledge of the location of the occiput in itself renders the cephalic application impossible for we have no sense of direction nor can we tell how far the presenting part should be rotated. Therefore, forceps should not be employed until we are certain of the location of the occiput. If the sutures and fontanelles are difficult to distinguish, palpation of the baby's ears will always indicate where the occiput lies. This point has proved

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valuable time and again when others failed completely to find their bearings in some admittedly difficult cases; (5) secondary or deep inertia is due to uterine muscular exhaustion with complete absence of pains. The application of forceps in such cases constitutes the worst possible treatment, since increased traction becomes necessary to produce advance, thus adding to the fetal dangers. Moreover, after the uterus is empty, the inertia persists and the exhausted musculature does not respond promptly to ergot and pituitrin, causing undue loss of maternal blood; (6) general uterine retraction and tonic isolated contraction of Bandl's ring are the primary causes of obstruction to the progress of labor. If forceps are applied, the dystocia will only be increased. However, as soon as the retraction and ring dystocia are removed by a continuous deep ether anaesthesia, forceps may then be applied; (7) the tonic uterus does not warrant a forceps delivery for two reasons; first, it is presumptive evidence of disproportion and second, there is an imminent danger of rupture of the thinned out lower utrine segment.

Dangers

We cannot blind ourselves to the dangers following forceps deliveries especially at the present time when a furor operativus is dominating practically every surgical specialty. If we would only take the time to peruse statistical reports of forceps operations and ascertain the percentage of mortality for the infant and mother, perhaps, we might become more conservative and attempt to reduce the high mortality which is responsible for the opprobrium often attached to obstetrics.

Kerr reports an infant death rate as high as 27 per cent, while that of Bourne is 8 per cent with the majority of physicians registering percentages between these two. The maternal mortality of forceps operations ranges from 1 to 4 per cent with a morbidity as high as 16 per cent.

The risks of forceps operations with regard to the mother are two, namely, infection and laceration. Of the maternal infections puerperal sepsis is the most important and is so well known that it needs no further discussion. Under lacerations may be mentioned first the damage done to the cervix is ob-

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tained, second the lacerations of the vagina and of the perineum which are usually encountered where the extraction of the head by forceps is too rapid and also in such presentations as persistent occiput posterior and deep transverse arrest, third injury to bladder which results most often when the physician fails to pass the catheter before a forceps operation. With intelligent care and proper asepsis the risk of the mother ought to be slight or should be practically nil.

The risks incurred by the child as a result of forceps operations are more numerous. Some of the more important fetal injuries are the following:

(1) asphyxia neonatorum which is usually caused by severe and prolonged compression of the head by badly applied forceps;

(2) fracture of the skull;

(3) intracranial hemorrhage;

(4) cephalohematoma (an effusion of blood between the pericranium and the bone);

(5) fracture of the nasal bones;

(6) laceration and even removal of the ear;

(7) injuries to the eyeball;

(8) indentations of the skull which may be furrow-shaped or spoon-shaped and usually involving the parietal or frontal bones or both.

Your attention is called to the spoon-shaped variety which is usually associated with a fracture of the indented portion of the bone and in our experience has been more serious than the furrow-shaped indentation of the skull;

(9) facial palsy is as a rule caused by the compression of the trunk of the seventh nerve at its point of exit from the skull by the tip of the blade of the forceps.

Many of the foregoing fetal injuries incidental to forceps operations are unavoidable even by the most expert obstetricians, so it surely behooves the general practitioner to be most cautious in his management of labor, and only apply the forceps in those cases where the indication clearly justify what is after all a risky procedure.

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I have recently been testing a new oxytocic, a combination of thymus and pituitary gland, kown as Thymophysin, and published my preliminary findings.

As a result of my own observations and those of a number of writers in Europe and United States, I am convinced that the use of thymophysin obviates the necessity for the use of forceps in at least 75% of all labors. Most of you are familiar with the dangers attending the use of pituitary extracts, even by the most experienced obstetricians. The addition of thymus extract has robbed pituitary extract of its potentiality for harm, and, if you accept my statements with regard to the dangers of forceps operations, you will be glad to know of a preparation which is easy to use, and will so greatly reduce the number of cases which would otherwise require the use of the forceps.

Summary

In this era of intensive scientific research, it is gratifying to note that obstetrical progress is well maintained, and that systematic prenatal care has saved many maternal and fetal lives. In order that full advantage may be taken of this reduced mortality, physicians should take the utmost care to only employ the forceps when properly indicated, and by the use of safe and reliable oxytocics, do their best to render operative procedure unnecessary.

Finally, this is an age of specialization and no general practitioner should hesitate for a moment to invoke the advice and assistance of a specialist, when there is even an adumbration of risk to mother or child.

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Pain and Disability of the Upper Extremity

By A. M. Rechtman, M.D., F.A.C.S.

An extremity is defined as a limb, an end, or a termination. There are two kinds, the upper and the lower. Too often the orthopedic surgeon and his work are connected in thought with the lower extremity. In the evolution of man and the assumption of the erect attitude the functions of the upper extremity have become specialized. This part is less subject to traumatism and the conditions causing pain, and the effects of these differ from those in the lower extremity. The causes of upper arm pain are more rare, and in their entirety and with few exceptions not as much is known regarding them, which makes it a fit subject for presentation.

A tendon is cut in the lower extremity and it heals, while the same trauma in the upper extremity results in the ends receding and in nonunion. The function of the lower extremity is chiefly gross, that is, weight bearing; whereas in the upper extremity there is a greater delicacy of movement, finesse, and touch and these are of greater importance.

The reconstructive surgery of the lower extremity aims for efficient weight bearing but in the upper extremity, and more particularly in the surgery of the hands and fingers, any added motion or power is usually a big factor. For example, if a man can approximate two fingers so that he can hold a cigarette, if he is a smoker, he is made happy, whereas such slight power in the lower extremity is useless.

Pain is the one symptom that brings most patients to our offices, and next perhaps dysfunction. A few of the more usual conditions causing pain and disability in the upper extremities will be briefly discussed to stress diagnosis and treatment.

Anatomy

A knowledge of anatomy frequently clarifies what might otherwise be a doubtful or hazy clinical picture. In the study of an extremity whose structures are relatively superficial a

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knowledge of the anatomy is essential and easily attained. The study is also enhanced because there is a right and a left for comparison as regards symmetry, muscle tone and limitation of motion.

The anatomy of the extremities is generally more familiar than, let us say, that of the back, chest or abdomen. The joints, the enarthrodial of the shoulder, the ginglymoid of the elbow, the condyloid of the wrist and the finger joints are all so situated as to permit inspection, palpation, clear x-ray, and general examination. A knowledge of the course of the important nerves; the situation of those few bursae, as the subacromial, an involvement of which so often causes a painful shoulder, and the superficial bursa over the olecranon are factors aiding diagnosis. Knowing the origin and insertion of the ligaments and tendons about a joint makes clear the question of sprains and strains. The joints of the upper extremity are subject to the same injuries, infections and diseases as the joints elsewhere in the body, the nerves to neuritis, and the bursae to inflammation with pain of the adjacent joints.

Neuritis

Many patients with upper arm pain present themselves with a self made or otherwise acquired diagnosis of neuritis or rheumatism so that these conditions and a number of those more commonly confused with them must be discussed.

The *etiology* of neuritis is important in the diagnosis and the treatment and the causes are grouped under various headings. The most usual are: 1. Exogenous poisons: alcohol and lead; 2. Metabolic disorders: diabetes; 3. Cachetic diseases: tuberculosis and cancer; 4. Infectious diseases and inflammation: acute infections as diphtheria. Foci of infection of any nature and place in the body may liberate toxins causing a neuritis. The usual foci associated with neuritis are the teeth, tonsils and the prostate; 5. Mechanical: crutch paralysis, pressure during anesthesia or alcoholism (the so-called Saturday-night palsy).

The onset of a neuritis is usually acute, coming on in a few hours and rarely as long as twenty-four hours, with acute pain or parasthesia in the arms along the course of the involved

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nerve trunk as the median ulnar or circumflex. The pain of a neuritis due to inflammation is sharp and shooting in character and accompanied early by a very definite exquisite tenderness which is less marked later. The pain may be elicited wherever the nerve is superficial by pressure over the nerve trunk. The disturbances in a neuritis are sensory and motor. The former manifested by loss of pain, touch and temperature, partial or complete, and the latter by loss of power and atrophy in the muscles supplied by the nerves involved.

PROGNOSIS: The prognosis depends upon the degree of degeneration of the neuritic nerve and in an acute neuritis is ussually good if the cause is determined and properly treated from the beginning. In the acute stage absolute rest is essential and this means no massage and no electricity. The ordinary sedatives as luminol, bromides and codeine are usually effectual. Chronic cases are benefited by baking, massage and diathermia, and removal of the foci. The course of recovery can be followed by Tinel's sign which is deep pressure tingling. Light percussion over the nerve trunk below the point of injury causes tingling in the area of distribution of the nerve. The point at which tapping produces the tingling, gradually moves toward the periphery as regeneration occurs. This response indicates that there is some degree of regeneration, but it does not prove that motor or complete sensory return will follow.

The onset in chronic neuritis as in tuberculous disease and diabetes is slow, and the usual complaints and findings are parasthesia, loss of sensation, atrophy and motor disturbances rather than acute pain. Although the patients present themselves not for pain but for loss of muscle power, pain is present on pressure over the nerve trunks as in the acute cases.

Certain nerve palsies have characteristic deformities or griffe as wrist drop, claw hand and so forth. Motion is limited in the affected muscular groups but passively it is free and in this way differs from an arthritis in which there is some restriction of motion in every direction and from a periarthritis in which motion is restricted in one or more directions.

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Neuralgia and Rheumatism

Neuralgia is an obscure term to indicate nerve pain with no definite idea of the cause and few definite ideas as to the involvement of a specific nerve trunk. The so-called trigeminal neuralgia is a neuritis.

Rheumatism I have long ago heard defined as a name we give to something about which we know nothing.

Arthritis

Pain is the prominent feature in an arthritis of the joints of the upper extremity as it is in arthritis elsewhere in the body. The pain varies in degree depending upon the cause of the arthritis, but it is not characteristic or diagnostic, and it may be referred along the course of the nerves. The diagnosis of an arthritis is made by the associated findings; limitation of motion in all directions, pain, muscle spasm. In an acute joint there are present all the signs of inflammation. Chronic arthritis is characterized by atrophy. The history often discloses an injury· misuse or overuse or an infection elsewhere in the body. The x-ray confirms the diagnosis.

Tuberculous Arthritis: Tuberculous disease is less frequent in the upper extremity than in weight-bearing joints or in those supporting superincumbent weight. The joint is enlarged and there is a marked atrophy of the surrounding tissues. Motion is limited in all directions. The disease is persistent, of a very low grade, and abscess formation is unusual. At the elbow where the condition is more common in the adult, the ulna is usually affected and the radius rarely. Tuberculous disease of the wrist is exceedingly rare. Conservative treatment should always be practiced in children. In adults early excision before too much bone is destroyed is the treatment of choice.

Gonorrheal Arthritis usually occurs in the third or fourth week of the disease, or as the urethral discharge is abating and it is probably due to the localization of a septicemic embolus. One or more joints may be involved and in the upper extremity the pathology is most frequent in the wrist as a serous effusion with a periarticular edema. It is common

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for many joints to be involved and recovery to result in all but the one in which the disease process is advanced. The reaction is a low grade inflammatory process and the course of the disease is therefore painfully slow. Recovery may be complete, there may be some restoration of motion, or the joint may be entirely destroyed.

ARTHRITIS DEFORMANS: This disease is often monarticular when it occurs in the shoulder and there is usually a history of trauma, disuse or misuse. In the elbow and wrist the disease is as elsewhere excepting that as in non-weight-bearing joints the proliferative form with an absence of osteophytes is usual. Treatment in mild cases consists of rest and physiotherapy. The parts should be so held that if ankylosis occurs a useful position or attitude will obtain.

TRAUMATIC ARTHRITIS: An injury in one predisposed to an arthritis is often the localizing factor in causing this condition which is far less prevalent in the upper than in the lower extremity. The condition is monaritcular, but x-ray examination of the corresponding part of the other limb often shows beginning arthritic changes.

Continued disuse, misuse or overuse of a part in adults in the degenerative stage of life, after 40, may cause a low grade degenerative or so called traumatic arthritis. The joint swells, there may be a slight increase of fluid and the structure and function of the part may be seriously affected. The prognosis depends on the injury already sustained and the arthritis does not usually progress if the trauma ceases.

PYOGENIC INFECTIONS: The source of infection is by direct implantation; by extension from an adjacent infection; or hematogenous. Almost every organism described has been isolated from infected joints, but those most commonly found are the streptococcus, staphylococcus, pneumococcus and gonococcus.

The exudate may be serous, serofibrinous or purulent. The periarticular tissues are affected in every case of arthritis. The joint cartilage may become involved and the bone exposed and an osteitis with sequestration result.

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STAPHYLOCOCCIC AND STREPTOCOCCIC ARTHRITIS present a similar pathological picture. Strains of these organisms have been reported as the cause of so called rheumatism. More virulent infections with these organisms give all the signs and symptoms of an acute inflammation with pus formation and even destruction of the involved joints.

PERIARTHRITIS—SUBDELTOID BURSITIS

This condition was described in 1872 by Duplay under the title of "Scapulo-Humeral Periarthritis." The subdeltoid bursa lies between the deltoid, the supraspinatous and infraspinatous muscles and the carico-acromial ligament. Inflammation of the bursa with a slight injury is a frequent cause of a painful shoulder, the condition being extra articular. The onset may be insidious and the symptoms are not pathognomonic unless a loose body can be palpated within the bursa or if there is localized pain and swelling in the bursal region.

Pain is the chief symptom and is usually a dull ache or constricting sensation about the shoulder which may radiate to the arm and forearm. A localized area of pain on pressure below the acromion is common and is aggravated by motion, especially abduction and rotation. As the disuse progresses motion is often gradually and increasingly restricted. An enlarged and inflamed bursa acts as a mechanical block to abduction.

A subdeltoid bursitis is probably only part of a periarthritis with involvement of the other structures about the shoulder joint. The x-ray is usually negative for joint or bony injury or disease, but a calcareous deposit may be seen in the region of the bursa. This finding is not uncommon in symptomless shoulder joints x-rayed for other causes.

TREATMENT: Fix the arm in abduction and external rotation during the painful stage. This is an attitude of neutral muscle pull or physiological rest and it prevents the formation of adhesions which may later limit abduction. After the acute symptoms subside baking, diathermia, manipulation and active and passive exercises are beneficial.

Restricted motion in chronic cases is treated by anesthe-

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tizing the patient and carefully manipulating the shoulder to the full range of normal motion. The wrist is then tied to the head of the bed, which is elevated, until the pain subsides. This attitude maintains the abduction. The after care is similar to that of the acute cases after the early inflammatory symptoms have subsided. It is rarely necessary to excise the bursa.

Stiffness of the Shoulder

After injury or infection in the upper extremity necessitating holding the arm at the side for a long time, the patient often has a stiff and painful shoulder when motion is begun. This is due to probably a traumatic or infectious arthritis or periarthritis and x-ray examination is negative.

This condition may be prevented by moving the shoulder through its normal range of motion carefully and passively once a day. Active treatment consists of baking, diathermia, massage and active and passive motion. If adhesions are present, it may first be necessary to anesthetize the patient to stretch or break the adhesions by manipulating the shoulder through its normal range of motion.

Injury of the Cartilage of the Head of the Humerus

A fall on the outstretched hand results in a fracture of the forearm and after the splints are removed and motion is started the patient, for the first time, may complain of pain in the shoulder. The cartilage of the humeral head may have been injured by the force of the original trauma transmitted upward.

A panus forms at the site of the traumatized cartilage and the pathology of repair is similar to that of a corneal injury of the eye in which small blood vessels grow in from the periphery or limbus to heal the injury. Cartilage, like the cornea, is avascular and the panus or blood vessels growing in from the periphery of the cartilage carry off the debris, and when healing occurs, these vessels are obliterated. The injury is intraarticular and motion is therefore restricted in every direction. The treatment is rest and heat is comforting. Because of the avascularity of cartilage the healing time is greater than that of a fracture and the pain of the fracture early overshadows the shoulder discomfort.

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DIFFERENTIAL DIAGNOSIS

CHART NO. 1

DIFFERENTIAL DIAGNOSIS

	Neuritis	*Arthritis*	*Periarthritis*
ETIOLOGY	Metabolic: Mechanical: Ex. & endogenous poisons: Cachectic dis: Infectious dis.	Every known organism.	Strain plus infection.
ONSET	Rapid—few hours to 24 Insidious in cachectic dis.	Usually insidious unless acute infection.	Usually insidious.
DISTRIBUTION	Along course of a nerve.	One or more joints.	Single or multiple.
PAIN	Acute—sharp and shooting. Chronic — parasthesia with loss of sensation.	Pain always present but not characteristic. Diagnosis made by associated findings.	Pain on change of position.
TENDERNESS	Exquisite to pressure along course of nerve.	Local tenderness.	Often absent at rest. Present after activity.
ATROPHY	In distribution of involved nerve.	Joint and periarticular tissues swollen. Adjacent parts atrophied.	Usually normal.
DEFORMITY	Claw hand. Wrist drop.	Usually flexion and abduction deformity.	Usually normal.
LOSS OF MOTION	Limited to affected muscle group. Free passively.	In every direction.	In one or more directions but not in all.
MUSCLE SPASM	—	+	+ in one or more directions.

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Summary and Conclusions

A brief resume of some of the more common and frequent conditions causing pain and disability in the upper extremity is presented. It aims to clarify the diagnosis of the various conditions, and to show that there are other ailments than the so-called and frequently diagnosed neuritis and rheumatism. Most cases of upper arm pain at the shoulder are the result of periarthritis, and of these many are due to a subdeltoid bursitis. Neuritis is uncommon and the exquisite tenderness or pressure over the nerve trunk aids in the correct diagnosis. A study of the differential diagnostic chart shows that there should be little confusion in differentiating a neuritis from an arthritis and a periarthritis. In the former pain on pressure over the course of the involved nerve is a constant finding. Limitation of motion, to a greater or lesser degree, is always present in every case of arthritis; while in a periarthritis motion is limited in one or more directions, but not in all.

The study of upper arm conditions, as in most others of an orthopedic nature necessitates a knowledge of the anatomy of the part as an essential to making a diagnosis, and to the understanding of the pathology. Physiotherapy is a valuable aid in the treatment.

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Problems in Dermatology[1]

II. Generalized Neurodermatitis[2]

By Fortunato A. Diasio, M.D.

There is no doubt in our minds that neurodermatitis (circumscribed or generalized) is a symptom of hypersensitiveness or allergic state, even though we do not as yet understand the mechanism involved in the production of this neuro-cutaneous aberration. Suffice it to state that these patients possess a *"constitutional peculiarity"* or *"altered reactivity"* which is characteristic of hypersensitiveness or allergic state and which "constitutes the pathogenesis of their symptoms." The mechanism by which normal individuals become protected against a foreign protein and non-protein substances is absent and the vegetative nervous system is functionally deranged. This lack of the normal operation of this defending mechanism which leads to a state of immunization in the average person seems to be a familial tendency and may possibly be in the nature of a recessive hereditary characteristic, transmitted according to mendelian laws.

The disease is characterized by its chronicity, recurrence, lichenification, pruritus and its special localization and distribution. The patient with a generalized neurodermatitis is nervous, always irritable and high strung. He co-operates poorly and unless the physician gains his complete confidence and supports the latter with psychotherapy, it will be quite futile to proceed with the treatment. For the average dermatologist these patients are a great source of discomfort. As in the case of the psoriatic, these poor unfortunates also go shopping from one office to another. To appreciate their misery and to realize our own inability at times to control their incessant scratching and mutilation of their bodies arouses in us a disconcerting feeling of pity. It is fortunate, however, that each recurrence is followed by a longer interval and that each new outbreak becomes less generalized as the patients

[1]A clinical lecture from the Department of Dermatology, Lincoln Hospital.
[2]The second of a series of problems under discussion.

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grow older until the eruption ceases to appear altogether. Thus, there is slowly formed a defence against foreign proteins and other substances or a immunizing mechanism is evolved which desensitizes the victim. It is for this reason that we do not see this dermatosis in patients past middle life.

It is important to make the sufferer understand that (i) the condition will recur; (ii) that the skin will break out on the slightest provocation, for the skin is *in a heightened state of irritability* and that this *increased reactibility* approaches the normal standard only after the eruption subsides; (iii) that to favor the involution of the present attack and to prevent a recurrence, it is necessary that the patient avoid excitement, nerve exhaustion, fatigue, scratching and even gentle rubbing of the skin at all times.

We prefer to place these patients on a soft diet consisting of fresh fruits, fruit juices, leafy vegetables and cereals when tolerated. Since an indulgence in condiments, spices, tea, coffee, tobacco and alcohol in any form is a prominent contributing factor in the causation of the disease, these are prohibited. Likewise, since many cases show a malfunction of the gastro-intestinal and associated organs like the pancreas, we also interdict meats, milk· eggs, fish, sugar and fried food. Also the food that is allowed should not be taken hot. Any medication which will aid digestion, be it dilute hydrochloric acid, pancreatine, etc., should be prescribed, if indicated.

An afternoon siesta is insisted upon as well as plenty of sleep (at least 8 hours) during the night.

Any abnormality of the internal secretions should be corrected. The thyroid gland is often found to be at fault.

Prolonged salt water baths are recommended, the tub being prepared as follows: to a tubful of tepid water (30 gallons) add ½ lb. of table salt. Stir thoroughly. Bathe (without the use of soap and without friction) for 25 minutes. Do so at least twice daily. High colonic irrigations, preferably administered by some one who is an expert, are also desirable, 2 or 3 times per day, using 4 tablespoonfuls of bicarbonate of soda to each quart of warm water.

It is significant that the same drugs that are effective as treatment in the allergic state and in vagotonia-atropine, cal-

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cium, epinephrin, etc.—are also efficacious in generalized neurodermatitis. Calcium gluconate is given intravenously, alternating daily with eczebrol to influence the irritability of the skin. The antipruritic effect of the eczebrol may be enhanced by the daily oral use of 2 to 3 effervescent triple bromide tablets. Atropin we rarely use while epinephrin has been recently replaced by ephedrin which is prescribed as follows:

℞ Parathyroid ext. ..... gr. 1/10
Ephedrin (Lilly) ..... gr. 3/8
Calcium gluconate (Sandoz) ..... gr. xv
M.et pone in chart.no.i.
D.T.D.no.xxx.
Sig.: One powder in water t.i.d.a.c.

Locally we have found that these patients do not tolerate any ointment whatever except cold cream which we occasionally use on the face only. The following powder may be used with gratifying results for the pruritus:

℞ Phenol.
Menthol ..... aa. gr. v.
Zinci oxidi ..... ʒ. ii.
Talc.
Amyli ..... aa. ℥. i.
M.et Sig.: Apply as often as needed to the skin.

The following antipruritic lotion may be used instead:

℞ Phenol ..... ʒ. i.
Menthol ..... gr. x.
Chloral. hydrat. ..... ʒ. ii.
Spir. vini rect. (U. S. P.) ..... ℥. ss.
Aq. camphorae ..... ℥. i.
Aq. calcis ..... q.s.ad. ℥. iv.
M.et Sig.: "Shake well before use"; dab on whenever necessary.

This lotion may be diluted with water or the following may be added: Zinci oxidi... ʒ. ii. and Zinci carbonatis (Calamine) .....ʒ. i. In place of the latter, Magnesium carbonatis..... ʒ. ii. may be used.

Since X-rays are not curative but may be used in very weak doses for sedation, since to continue with the radiation, in spite of failure to improve after a test dose, leads to an X-ray fast dermatosis and later sequelae (atrophy of the skin, telangiec-

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tasia, etc.) and since the recurrences are frequent and the roentgentherapy cannot be employed *ad infinitum,* we resort to this physical agent only when all the other therapeutic measures have proven a failure and then we give from 3 to 6 exposures of ¼ skin unit to each separate areas. If at the end of this therapeutic test there is no improvement, we discontinue this treatment. Also we do not repeat it when the patient returns with a fresh eruption unless the interval since the last course of X-rays (if any were given) is over 6 months.

Generalized, suberythema doses of ultraviolet rays, cautiously given for their indirect effect on the blood calcium and on metabolism, are advocated by some men. We have had no experience with phototherapy in this disease.

When owing to previous injudicious treatment the patient presents himself with a secondary dermatitis exfoliativa which masks the original eruption, we handle the case as if it were only a dermatitis exfoliativa and employ mild and soothing agents, feeling our way along until the secondary eruption clears up. Then we proceed as detailed above, only with greater care and less haste. We always begin our therapy with the following as a wet dressing.

℞ Liq. Burowi filtrat.....30.00
Talc.
Zinci oxidi
Glycerin.....aa.. 48.00
Aq. calcis.....q.s.ad...240.00
M.et Sig.: To be used as a continuous wet dressing.

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"Through the medical journals have been given to the world nearly all the discoveries which the science and art of medicine owe to American physicians. They furnish the original data which are the foundations of monographs and text books, and their files remain interesting and valuable when the latter have become obsolete and are forgotten."

—JOHN S. BILLINGS, M.D.

EDITORIALS

The Centenary of Abraham Jacobi

By VICTOR ROBINSON, M.D.[1]

It seems only the other day that a medical meeting was incomplete without Dr. Jacobi in the chair; his vivid personality is so contemporaneous that at first it is difficult to realize his centenary. Even the "younger men in the profession" remember so well that low voice with the interesting accent which often made us lean forward in our seats, those deep-set and penetrating eyes, the bronzed face, the splendid head and magnificent shock of hair crowning the small, trim figure, that we need a chronology to remind us he was cradled a century ago. It was long our habit to group him with his friends Osler and Welch, with whom he was frequently associated on committees and campaigns, and yet he was old enough to be the father of either, and was in fact the teacher of the latter. In his long life, Jacobi knew Valentine Mott—the pioneer surgeon who came into the world several years before Washington was inaugurated president of the new nation—and he likewise knew many internes who are now rounding out their first decade of practice.

[1] Editorial in the *Scientific Monthly*, July 1930.

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Abraham Jacobi was born before the Schleiden-Schwann cell-theory, the discovery of anesthesia, the clinical triumphs of the great men of Guy's, the introduction of experimental medicine by Claude Bernard; he was middle-aged before the birth of antisepsis and bacteriology; he was old before von Behring treated diphtheria with antitoxin and Jacques Loeb explained the theory of tropisms; yet he was modern enough to hear that the Soviet government had established an Institute of Experimental Endocrinology at Moscow, and that the new generation of Russians had founded a Pediatric Society at Odessa.

Metternichism in 1848 closed the careers of myriads of promising youths, and Jacobi, for his participation in this European revolution, was transferred from the clinics to a Prussian dungeon—for two precious years the ink faded uselessly on his recent diploma. Then escape, through a friendly jailer's intercession, and the three-master *Trimountain* carried the exile to a foreign shore. Forty years later the Prussian government invited the fugitive to return—as professor of pediatrics in the University of Berlin, but too many ties bound "the last of the forty-eighters" to the new motherland. Jacobi had become an integral part of American life, and like Jacob Henle, who had tasted the same brand of Prussian justice, he declined the honor.

Jacobi was one of the forces that made the nineteenth century the "century of the child." Not only was he our first teacher of pediatrics both in the lecture room and at the bedside, not only was he the guardian at the nation's nursery door, not only were his monographs the guide posts of his colleagues, but he made us remember the soul of the child. It is infinitely pathetic to recall that Jacobi's own first-born died in infancy, and at the age of seven his beloved Ernst passed away. Joseph O'Dwyer was a savior of childhood, but four of his sons died young. Thousands of little patients were saved by Jacobi, thousands of mothers blessed his name, but the father of pediatrics in America could not save his own children. A generation later, visitors to Lake George would hear Jacobi speaking of his lost boy. There stands in the writer's library a set of Jacobi's early reprints, collected and arranged by himself,

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bound and saved for his boy. On the first page is written in Abraham Jacobi's characteristic hand—*Für meinen Ernst gesammelt.* A terrible line—mute testimony of the impotence of the art of medicine.

In these days of ever-multiplying biographies, it is a strange neglect that the present writer's "Life of A. Jacobi" remains the only biography of this benefactor of the human race. His life was unique in many ways, and out of the thousands who knew him, there are those who should pause and give us recollections. Let us hope that the centenary of his birth will stimulate a disciple to preserve for posterity the record of the man who taught the medical profession the importance of the child. The science of medicine will make technical advances such as he never knew, but a nobler physician than Abraham Jacobi will never stand at a child's bedside. His lifelong battle for pure milk certainly deserves a volume. To this biographer we leave this sentiment: The father of pediatrics in America—he brought the cradle into medicine; he taught a nation how to feed its infants; and childhood is safer because of the life work of Abraham Jacobi.

Collapse Therapy in Tuberculosis

By Willard J. Davies, M.D.

The treatment of pulmonary tuberculosis with artificial pneumothorax was first brought into prominence by Forlanini, and earlier thought of by close observers who had noted the beneficial results in patients who had had a spontaneous unilateral collapse, and is now being used by a greater and greater number of phthisologists as they find its wide field of possibilities.

This method, astonishingly little known among general practitioners and specialists in other fields, should be more sharply brought to their attention. Many patients give histories of care under their personal physician sometime during which the patient was eligible for a collapse which time has long passed.

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The collapse is instituted by inserting sterile air between the parietal and the visceral pleuras. By frequent small amounts of air, the negative pressure is converted to a positive one. In this manner, the lung is gradually collapsed until the position is reached in which the operator wishes to carry his patient. A selective collapse may be the desired end—one in which the diseased area alone is collapsed and a sixty percent collapse on the remainder. The selective collapse can only be used in an early involvement of one or both apices. Complete collapse is guided by the roentgenogram, as also is the selective collapse. The roentgenogram determines whether or not your collapse will be limited by adhesions; if they are not in the field, if the cavity is closed.

Two main effects of the collapse are sought—a local mechanical one, and the removal of toxaemia.

The mechanical effect is accomplished by placing the diseased part in a quiescent state, thus stopping its motion with respiration. Cavities can be closed and their walls adhere, hemorrhages can be stopped almost with the efficacy of a hemostate. Lymphatic stasis is also established from the contralateral lung. In fact, tuberculus activity is at a standstill.

Toxemia is rapidly decreased. This is manifest by the loss of symptoms, fever, malaise, cough and gradual improvement in general health. The element of toxemia is so important that I hesitate to advise pneumothorax where definite toxemia is not evident. A patient who becomes symptom free, temperature normal, gains weight in a few weeks on the simple rest cure has a very good chance to advance to cure without the collapse treatment.

Successful pneumothorax depends upon suitable selection of one's cases. The ideal case for this form of treatment is the early progressing unilateral disease with the contralateral lung clear or nearly so. As the disease progresses as to time and also in activity, the chance for collapse may have slipped by, either by the formation of adhesions which prevent a collapse from giving a good therapeutic result or the rapid spread of the disease to the other lung.

A few exceptions to the waiting rule as to toxemia are the young adolescents. They do not withstand the toxemia and are

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open to a slow but steady progress of the disease. I also select my cases according to race remembering the poor resistance of the Irish and Scandinavians who have recently immigrated to this country. Early collapse gives the best results. My experience with negroes, suitable for a comparison, has been too small to form an opinion.

Hemorrhage can readily be stopped by immediate introduction of gas. I have noted several massive hemorrhages to stop with several injections of 200 c.cm. of air at three day intervals. Others with pleural adhesions have had hemorrhages arrested with simple introduction of small amounts of air—enough to give a positive pressure.

Few contro-indications exist if in the operator's mind the necessity of pneumothorax outweighs them. The functioning lung which is to carry the burden must be carefully considered. Serious disease of the circulatory organs or the kidneys would make operative work out of the question. Compensating cardiac disease and healed nephrites in a young patient will admit of pneumothorax.

Laryngeal tuberculosis is rarely primary and so secondary to the positive sputum which may be rendered negative by collapse and the laryngeal tuberculosis result in a cure.

Diabetes can be controlled with insulin. Age is also a difficult problem to the phthisiologist about to consider a collapse. Again careful consideration of the case may decide to give pneumthorax. Two of my patients, one 65 years and 54 years, both male, have benefitted by this method.

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Priority as to the Discovery of the Steenbock Process of Antirachitic Activation

While the question of priority as to any discovery is of little importance from the clinical point of view, it is of paramount interest to the medical historian and to the public at large. It is obviously impossible to designate Drs. Alfred F. Hess and Harry Steenbock in one name and every medical writer must, therefore, decide which name is to precede the other.

In tracing the development of the utilization of ultra-violet rays in the activation of foodstuffs, for instance, I was confronted (Med. Rev. of Rev., Aug., 1929, p. 446) with the problem of priority which was further complicated by the issuance of patent rights to one of the eminent discoverers. This required several weeks research which was condensed in the phrase: "In 1924 Hess, as well as Steenbock," etc. The points in the evidence which seemed to favor Dr. Hess were the following, in order of their importance:

1. The first *public* announcement on the antirachitic activation of food by ultraviolet radiation was made by Dr. Hess at the annual meeting of the American Pediatric Society, on *June 7th,* 1924, where it was fully discussed (*Transactions* American Pediatric Society, XXXVI, June 5-7, 1924). *Three months later* Dr. Harry Steenbock published his note on the subject in *Science* (LX, 224, Sept. 5, 1924) which was followed by a note from Hess (*Science,* LX, 269, 1924). During the same month appeared Steenbock's first paper (Jour. Biol. Chem., LXI, 405, Sept., 1924) followed by an abstract of the paper read by Hess and the discussion at the American Pediatric Society, in June (Amer. J. Diseases of Children, October, 1924).

2. The title and abstract of the paper by Dr. Hess was received by the Secretary of the American Pediatric Society on April 12, 1924; having been mailed on April 10. The paper by Dr. Steenbock was received for publication on April 18, 1924.

3. The *scientific priority,* thus obtained by Hess through prior public announcement and prior reception for publication

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could not be invalidated by any delay in the actual publication of his paper; nor by the application or granting of patent rights to anybody else, which merely constitutes *commercial priority.* From a commercial point of view, the name of Hess may be entirely ignored; but from the scientific standpoint, his name must precede that of Dr. Steenbock.

To the above considerations, the following may be added: Dr. Hess has been in the field earlier; having begun his ultra-violet work on rickets as early as 1918. His material being mainly human, his observations have a more immediate significance. It is well-known that therapeutic results obtained in animals, often cannot be applied to humans, or require a new series of experiments on man before they can be said to have any practical value. Thus, a cure for vegetal or rat cancer, would have no significance when compared to the great benefactor of humanity who will first discover how to cure human cancer.

The fact that Dr. Steenbock delayed the publication of his paper in order to secure patent rights, can have no bearing on the question of scientific priority. Moreover, the filing of an application in the patent office, together with the payment of twenty dollars, secures to the applicant a dated receipt and it is not quite clear why Dr. Steenbock had to delay publication until the patent was granted. His interests could have been further protected by a note to the effect that patents were pending. Dr. Hess who followed the best traditions of the medical profession by refusing to apply for a patent on his discovery, would have been awarded the honor of priority on this alone, if everything else were equal. Dr. Steenbock, not being a physician, cannot be expected, of course, to adhere strictly to medical ethics. The fact that he does not profit directly from the patents granted to him and that same were applied for solely for the purpose of protecting the public, are subject to various interpretations. The recent case of the lead treatment for cancer which Dr. Blair Bell had assigned to his institution, has been criticized as an attempt to circumvent any criticisms that might have been directed against him from the profession. Nor has it prevented to raise exaggerated hopes in the minds of numerous sufferers—hopes which were lamentably shattered!

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There are sufficient legal enactments for the protection of the public against spurious preparations and the Council on Pharmacy and Chemistry of the American Medical Association is quite capable of properly advising physicians in such matters. Although there are no patent rights on serums and vaccines, the market is remarkably free from spurious preparations in this line.

Furthermore, it makes no difference whether Dr. Steenbock finished his work before Dr. Hess; statements to this effect cannot be regarded as evidence. Nor should the reluctance of Dr. Hess to exaggerate the importance of his discovery; on the contrary! It is an open question still whether irradiated foods and medicinals will acquire that importance which Dr. Steenbock seems to ascribe to them.

Finally, if everything else were equal, seniority and the alphabetical order would still compel us to refer to the glorious discovery made by Dr. Alfred F. Hess and Dr. Harry Steenbock, independently of each other, as the Hess-Steenbock discovery.

PAUL LUTTINGER, M.D.
Secretary, American Society of Medical History.

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BOOKS

184. CARLETON WASHBURNE *and* M. M. STEARNS: *Better Schools.* STANWOOD COBB: *The New Leaven. John Day, New York,* 1928.

Children's specialists, and family physicians as well, will greet with enthusiasm these books from the press of John Day Company, of New York, a publishing house which has set high standards of accomplishment for itself, and is living up to these by selecting outstanding works to bear its imprint. The first of these gives a very illuminating purview of what educational opportunities exist in various parts of the country, for parents who want something better for their children than the model of education that was current when Henry Ford invented his first horseless carriage, and New York City still used illuminating gas in its streets and private residences. The doctor who is asked about the newer type of education for the children in his practise, should know that education has undergone changes as fundamental as are those that have taken place in transportation and illumination—though not, unfortunately, nearly so universal in their application. As most systems of education must pass the inspection of the family physician before the family will allow them to take the child, it is essential that doctors become familiar with what Washburne's book sets forth so graphically and convincingly. No one can do this better than he; for the public school system that he has organized and inspired in Winnetka, Illinois, is a model for use the country over.

Stanwood Cobb's book, while less concrete in its approach, is intensely valuable to the doctor; for it gives him the aims of the progressive school education movement which is becoming so vital a factor in the remodeling of our school systems, even the most reactionary, which would repudiate the new leaven if they could. The doctor must keep abreast of such a health-giving or health-destroying thing as the school—and these two books will be of great assistance to him in so doing.

185. HANS KLEINSCHMIDT: *Treatment of Disease in Infants and Children. Translated by* H. M. GREENWALD. *Blakiston, Philadelphia,* 1928.

In 1918 Professor Kleinschmidt of Hamburg published his valuable vade-mecum for the guidance of the physician who treats infants and chil-

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dren. Several such books had already been written but none possessed the conciseness or the didacticism that characterized Kleinschmidt's little volume. Because of the lack of such a treatise in our country Dr. Greenwald deemed it worth while to translate it into English. Incidentally it is interesting to know that it has also been translated into the Russian and the Portuguese languages. This book should appeal particularly to the man whose experience with children is limited and who needs explicit instructions, both medical and dietetic, particularly the latter. In this respect it is to be regretted that the translator did not omit those German proprietary drugs which are totally unknown to the American physician. This lack of omission is overwhelmingly compensated for by the invaluable "Translator's Notes" in which Dr. Greenwald presents the American point of view on the therapeutic measures discussed in this book. Every physician would do well to add this book to his library—and study it.

CHARLES R. MESSELOFF, M.D.

186. That there should be certain types of men and women who are predisposed to certain diseases, is an impression that experience has borne in upon a great many of us who practise medicine. To see this general impression made the text of a scientific thesis, buttressed with definite scientific facts that do not admit of denial, is at first a rather surprising, and later an intensely interesting adventure in medical reading. Dr. Draper has drawn the material for his *Disease and the Man* (George Draper, M.D., Macmillan. New York, 1930), from the Constitution Clinic at the Presbyterian Hospital, in New York, and carries to greater lengths the pioneer work presented in his Human Constitution, six years previous. The book is a scholarly defense of the advice that has become almost rite—that we must treat the patient with the disease, not the disease itself. Recalling Hippocrates and his classification of mankind, Dr. Draper presents a four-panel screen—each panel bearing a separate portion of the complete picture —anatomical, physiological, immunological and psychological. It is not a book to be read in an hour—nor one that was written in a year. It is something to be studied deeply; for it holds great things for the man who deals with the lives of men, as the doctor does.

FRANK HOWARD RICHARDSON, M.D.

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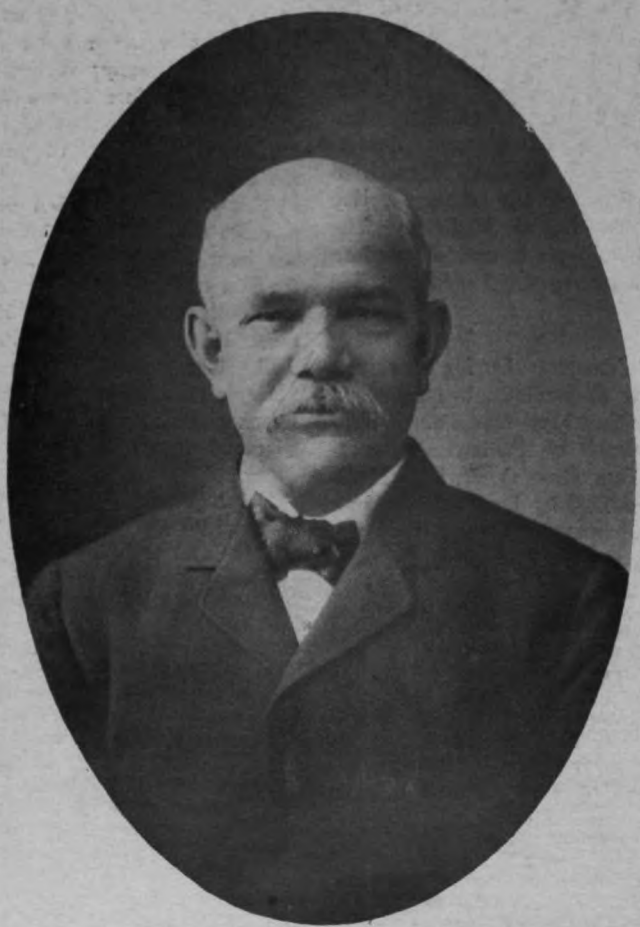

Reginald Heber Fitz [1843-1913]

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MEDICAL Review of Reviews

Foundation of Journal: The Medical Review of Reviews was founded in 1895 by Daniel Lewis, M.D., M.A., Ph.D., LL.D., Professor of Surgery, New York Postgraduate Medical School and Hospital; Commissioner of Health, State of New York (1892-1904); President, New York County Medical Society (1884-86) and Medical Society of the State of New York (1889); Vice-President, New York Academy of Medicine (1896). The Medical Review of Reviews was the first medical journal in America to devote itself to abstracts and to publish a monthly Index Medicus. These features became unnecessary and were eliminated when numerous periodicals added abstract departments and the American Medical Association began the publication of the comprehensive Quarterly Cumulative Index Medicus. The Medical Review of Reviews is now devoted to original contributions on general medicine and public health.

Amalgamation of Journals: During its career, the Medical Review of Reviews has absorbed these five journals: Southern Medicine, Therapeutic Medicine, Journal of Pediatrics (founded 1895 by Dr. Dillon Brown), Buffalo Medical Journal (founded 1845 by Dr. Austin Flint), and Archives of Therapeutics.

Medical Sociology: The Medical Review of Reviews, one of the first journals to recognize the relationship of medicine to social problems, produced Eugene Brieux's Damaged Goods, Frank Wedekind's The Awakening of Spring, Gerhart Hauptmann's The Weavers, and various other social dramas and films. This phase of the journal's activity was under the direction of its publisher and managing editor, Frederic Hugo Robinson (1890-1923).

Contributors: The many distinguished physicians and surgeons of the past who have contributed to the Medical Review of Reviews include: Abraham Jacobi (1830-1919), Daniel Bennett St. John Roosa (1838-1908), George Ryerson Fowler (1848-1906), Roswell Park (1852-1914), Byron Robinson (1854-1910), John Veitch Shoemaker (1858-1910), Heinrich Stern (1868-1918), and Sir James Mackenzie (1853-1925).

Exclusive Publication: Manuscripts are considered for publication upon condition that they are contributed to this journal exclusively.

Manuscripts: Manuscripts should be typewritten, double-spaced, with ample margin, mailed flat; the ORIGINAL is to be sent and the author should preserve the CARBON. Authors should read their manuscripts carefully before submitting them for publication. Unsolicited manuscripts should invariably be accompanied by return postage.

Publications: Notable contributions to these pages include, among many others, Sir James Mackenzie's Cardiac Signs; J. F. McClendon's Hydrogen Ion Concentration in Physiology and Medicine; Victor Robinson's Landmarks in Pharmacology, Autobiography of the Tubercle Bacillus, Medicine under King Mike, and American Medical Biography; various essays by Havelock Ellis; Mary Ware Dennett's Sex Side of Life; and James P. Warbasse's protest against the military conscription of youth. I. L. Nascher, the founder of geriatrics in America, established in this magazine the first department devoted to diseases of the aged. Among the books bearing the imprint of Medical Review of Reviews are the first editions of Victor Robinson's Pathfinders in Medicine, and Essay on Hasheesh; and Christabel Pankhurst's Plain Facts about a Great Evil. The journal has published various symposia, and also special numbers, including the Psychopathology Number which was prefaced by Sigmund Freud.

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In its dying years, the Nineteenth Century bequeathed to its successor three discoveries, infinitely romantic and of enduring importance. In October 1895, a teacher of physics, contemplating an exhausted vacuum tube in a black box, noticed that a paper screen covered with barium platinocyanide which accidentally lay nearby, became fluorescent. His curiosity aroused, he soon found that the unknown radiations from the tube could pass through substances opaque to ordinary light, and possessed the power of developing a photographic plate. Two months later, Wilhelm Konrad Roentgen gave to mankind as a Christmas gift, the x-ray. At about the same time, a young Dane, the Hamlet of medicine, born among the fjords and fogs of the Faeroe Islands of the North Sea, reared in Iceland, hopelessly ill since youth, captured the sun for therapeutics. Niels Finsen was the first, consciously and scientifically, to employ artificial sunlight in the treatment of disease. The light from Finsen's light gave us phototherapy. While these experiments, blended with genius and pathos, went on in the north, a man and woman moved into an abandoned shed on the outskirts of Paris, and worked there for many hours during the day, boiling and stirring in a large cast-iron vessel tons of waste material—brown dust and pine-needles that had come from the forests of Bohemia. Sometimes the man wrote formulas on the blackboard, while his wife prepared the tea on the broken stove. Often they returned to the shack in the evening, for out of that basin had come strange products—luminous silhouettes, glowing like fairy lights in the dark. One night Pierre and Marie Curie looked longer than ever, for in their magic pot they found Radium.—VICTOR ROBINSON, *Historical Aspects of Physiotherapy*, 1926.

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Medical Progress in Iceland

By ANITA M. MÜHL, M.D., PH.D.

Once upon a time there was a little girl and she had a little book, out of which she was supposed to study arithmetic, but she got bored so she went adventuring in her geography and she discovered the most fascinating little island all by its own self way up on the fringe of the Arctic and she was very curious about it, but all the geography book said concerning it was: "Iceland — capital, Reykjavik; principal exports, fish and sheep." The little girl was very disappointed—so she decided then and there that Iceland was going to be her hobby and she was going to know a lot more than that about it—in fact she was going to know all she possibly could about it.

The hobby grew and grew until all sorts of information had been collected about how to get to Iceland via either England, Germany or Denmark; what kind of weather existed (moderate heat and cold with the annual mean temperature at Reykjavik 39.4 degrees F.); the number of volcanoes, active and extinct (one with twenty-two heavy eruptions within historic times); the numerous hot springs, many eruptive; the rather frequent earthquakes; the many turbulent rivers, magnificent waterfalls and placid lakes; the great glaciers and lava fields; the charming old farm houses and the always delightful ponies.

But none of the books said very much about the Icelandic people. They talked and talked about geographic location; flora and fauna, natural resources, exports and imports, but

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the most important part of Iceland they forgot to go into detail about. So-called intelligent human beings are always doing things like that!

In the summer of 1929 the Iceland hobby had a chance to be tested. Every one said—"You'll be terribly disappointed after having read and studied about it so long—you're expecting too much." But from the moment I got on the Icelandic boat Godafoss in Hamburg I *knew* I was not going to be disappointed—and my conviction was justified.

On the ship were two Berlin physicians, Dr. Irmgard Kroner and Dr. Karl Kroner, who had been to Iceland before and who knew things medical in Iceland. At the Westman Islands, where we anchored the day before reaching Iceland, the Island physician came aboard. He told us that he was going to Reykjavik to attend the annual meeting of the public health physicians. This brought out the surprising information that this little country with a population of approximately 100,000 has fifty public health physicians maintained by the State.

Letters of introduction to several of the leading physicians and to the national librarian in Reykjavik opened the way to learning much about the medical situation in Iceland.

The first place to be visited was the Psychiatric hospital in the neighborhood of Reykjavik, where there were two resident psychiatrists, Dr. Thordir Sveinsson and Dr. Helgi Tomasson, with quite fundamentally different ideas in regard to the treatment of psychoses.

The new wing of the Psychiatric hospital is well constructed of concrete and the finishing inside is quite modern. Beds, bedding and furnishings in general appear very comfortable. The walls were tinted sun color for depressed patients and a restful subduing green for maniacs. The wards were so arranged that the total length of the quarters was very deceptive —the effect was obtained by an ingenious arrangement of arches. Many cheerful green plants were growing in the wards and everything had a most homelike appearance. Electricity was in use for cooking and for heating food in the diet kitchens. There was an installment for hydrotherapy, though apparently that had not been used extensively.

Patients were not treated as though they were abnormal;

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no mail was censored; visitors were not excluded and the tables were set with china, knives and forks and table cloths — a rather different picture from some of our state hospitals. Although ward clothes were provided, they were of different colored materials and were well cut. They were made in the hospital.

Occupational therapy was of the most practical kind. Much of the furniture as well as the mattresses, was made by the patients. These mattresses were as well constructed as those one sees in the shops. An expert comes a few hours a week to instruct the patients and supervise their work, but most of it they do alone.

I was invited to have lunch with Dr. and Mrs. Sveinsson. There were apologies for just the "family lunch," but it was very good indeed. There was a delicious soup, a big fish, with new potatoes and cucumber salad and dessert. Over our coffee and cigarettes we discussed the psychiatric situation in Iceland. Depressions are rather common and in the north of the island psychoneuroses of the anxiety type are frequent among fishermen's wives. Assaultive and dangerous types of behavior are practically non-existent in the psychoses on the island. Dissociative phenomena without psychoses are not rare.

The next visit was to the leper hospital. The physician-in-charge, a very cheerful, pleasant man, showed me all over the place. He assured me that the hospital was much too large for the then existing need, but as it could not be used for anything else it continued to be the home of the few remaining patients.

Of the twenty-odd cases remaining, quite a number were old. A few having the anaesthetic form were bed-ridden. In some cases all of the toes were gone and the feet were always kept bandaged. In the nodular cases treatment with chaulmoogra oil has been very successful.

Occupational therapy was provided for those patients whose hands were not involved. They were making fish nets and doing them exceedingly well. Most of the younger patients looked cheerful and the nurses were bright and happy.

The physician lives in town and goes to the hospital every day to make his rounds.

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There was originally place for 100 patients, but soon there will be no further need for such a hospital as no new cases are being reported. This is a very real triumph for the public health service in Iceland.

The next medical adventure came two days later. I had been invited to go to Dr. Einarsson's country home in the region of the hot springs, where the medical congress was having a tea to finish off the session. The ride out was marvelous—over lava fields and sandy wastes dotted with beautiful little blossoms. We drove for about two hours—up mountains and down corkscrew turns. Part of the time it was drizzling and part of the time we were in a heavy fog. The last quarter of a mile we had to walk over lava strewn fields, wiggly little bridges and a muddy, slippery road.

Mrs. Einarsson made a charming hostess for the fifty doctors gathered there, and of those fifty doctors there was not one who could not speak either German or English. In the guest room coffee and cake was served—and cigarettes. Cigarettes are almost as important as coffee in Iceland.

All of the cooking in this delightful summer cottage was done in an extensive double-boiler arrangement, the boiling water being piped in from the springs. The boiling water was also piped in and used for heating.

After coffee we all went out to see the hot springs in action, and this was quite marvelous. Behind the house were a number of springs with boiling water—one with boiling mud and a very few feet away there was another with the most sparklingly clear water boiling out of it. The laundry was done outside in a natural basin and baths were taken in the river, which had hot water following the eruption of one of the larger hot springs at stated intervals during the day.

On the way back to Reykjavik the party stopped to see Grilla—one of the geysers—spout. As we all sat on the hillside and watched for it to erupt we could see for miles and miles—range upon range of mountains, erupting springs everywhere, steam issuing from the ground all over and sheep grazing in the pastures. It was a beautiful finale for the Icelandic Medical Congress.

The next day a visit was made to the Sisters hospital in

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Reykjavik. This was a cheerful place, but overcrowded. The Sisters hospital in Hafnarfjordur is quite new, very modern, with plenty of room.

The new State hospital at Reykjavik, when in complete operation, will be quite splendid. The ground floor contains an extensive X-ray department. There are elevators, the most modern sanitary devices, fine operating rooms, large wards, private rooms and plenty of laboratory space. The third story has a well-protected balcony for tuberculosis patients. On the fourth floor is an auditorium for lectures and stack rooms for scientific journals.

The following day a visit was made to the State Tuberculosis Sanitarium. The doctor-in-charge welcomed Dr. Thorodsson, a woman pediatrician and me, and then took us to the head nurse. She and Dr. Thorodsson's sister had both been in America for several years and had taken public health courses. They spoke English well.

The wards were clean and well cared for. There were 163 patients, many ambulatory. There were lovely living and dining rooms, balconies and sunbath sections. The kitchens were clean and well kept. There were two physicians, six graduate and seven student nurses. The sanitarium had its own pharmacy and there were good X-ray and heliotherapy departments. The lava field sunbaths were the most unique feature of the institution from the viewpoint of an American. The lava blocks absorb heat and the patient lying on these blocks is very comfortably warmed.

The doctor's wife was most gracious and hospitable and we were served coffee, cake and—cigarettes.

The hospital has its own farm—cows milked by machinery; chickens and an incubator capable of hatching 250 chicks at once, but the patients do not like chicken meat and will not eat it.

The nurses are poorly paid—about twenty-five dollars a month. The physician gets about two hundred dollars a month and maintenance.

Dr. Hannesson, president of the Icelandic Medical Society and Iceland's great housing expert, has written several volumes on public health in Iceland which contain much valuable in-

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formation pertaining to health matters in Iceland. Through his efforts many improvements have been made in the housing situation in Iceland.

The two great problems of leprosy and echinococcus have practically disappeared. The one remaining problem of real importance is tuberculosis. There is a great deal of it on the island. The behavior of tuberculosis has been peculiar in Iceland. During the times when housing and sanitary conditions were poor, tuberculosis was considered fairly rare, but during the last few decades when all other conditions have improved so vastly, tuberculosis has increased rapidly.

There are about 100 trained medical men on the island, ten druggists, ten dentists, about two hundred midwives. In Reykjavik there are well trained men representing the more important specialties. Before 1760 there were no professional educated medical men, midwives or other sanitary officials. After the foundation of the Medical College in Reykjavik the number of medical officers began to increase. The chief medical officer resides in Reykjavik.

In the list of common epidemics are included varicella, interic fever, paratyphus, tonsillitis, diphtheria, acute bronchial catarrh, pneumonia.

Vaccination was legally enforced in Iceland in 1810 and since then the country has been exempt from smallpox. The 200 appointed midwives vaccinate the children.

There is very little venereal disease on the island.

Since 1916 all elementary and continuation schools have been subject to inspection by medical men. No children with open tuberculosis are admitted to the schools. No person with open tuberculosis is allowed to be employed as a school teacher, as a milk operator, in a restaurant or in a provision store.

The Icelandic Red Cross has maintained a nursing service and given courses in first aid and home nursing.

The Likn dispensary and nursing society is very active and makes many visits to not only tuberculous patients, but to all other types of sick people.

Iceland has an excellent university and a very good Medical School. The Icelandic physicians have their training at home

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but go to European countries for specialization and internships.

Infant mortality is low—50 per 1000. The care of infants is constantly improving. Cod liver oil is given frequently in regions where children do not thrive. In one district it was noted that cod liver oil often is given infants regularly in winter.

Until the summer of 1929 Iceland had given no consideration to the problem of Mental Hygiene, but I had the opportunity to invite a group to meet with me at the hotel to talk over the Mental Hygiene Movement in the United States and other parts of Europe. The educational representatives were particularly interested and were anxious to start a study group at the capital.

And now as to the personalities of these people doing medical work. They are fearless, independent and sturdy; courteous, friendly and hospitable. They are keenly alert, intelligent, cultured, tremendously interested in their work, with a real sense of service to country and fellow man. Some of their activities in the cold, long winters have about them all the grandeur of the heroic episodes in the Sagas, but they do not consider themselves heroic.

There is no true Icelander who cannot trace his family history back a thousand years, and though they have been an inbred race all these years, there have been no bad results. In fact they have produced more brilliant, outstanding people in proportion to the population than almost any other country in the world.

So much then for a brief account of just one phase of the Iceland hobby. It really is a nice hobby!

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ANITA MARY MÜHL

[Dr. Anita M. Mühl received her M.D. degree from the Indiana University School of Medicine and her Ph.D. in Psychiatry from the George Washington University. For two years Dr. Mühl was assistant physician at St. Elizabeth's Hospital (Government Psychiatric) and for one year was in charge of the Providence Hospital Psychiatric Clinic at Washington, D. C.

She has been especially successful in psychiatric research and numerous valuable articles from her pen have appeared in scientific publications. Several lengthy quotations from her articles are found in standard psychiatric textbooks.

Some of the Editor's neighbors who have been her lifelong friends have confided that Dr. Mühl edited a high school paper once upon a time with great verve, that she was at the head of her high school class, at the head of her medical class and stood first in the state board examinations, and that standing first has become a habit with her.—DR. MARY MCKIBBIN-HARPER, *Quarterly of the Women's National Medical Association.*

Additional information:

Psychiatrist for two years for the California State Department of Education.

Appointed Psychiatrist for San Diego County, but this position was declined.

Author of the book—"Automatic Writing."

Has resided five and one-half years in Europe.

Hobby—Iceland!]

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Narcotic Addiction Disease

By PERRY M. LICHTENSTEIN, M.D., LL.B.
Physician, to City Prison (Tombs), Manhattan.

For fifteen years drug addiction has engaged the attention of those charged with law enforcement and, in spite of laws passed with a view to solving the problem, there has been a distinct increase in the number of victims. More than sixty thousand such individuals have passed through the Tombs during the past eighteen years. These include those actively addicted and others, who have been pleasure smokers, cocaine addicts, marhuana users and a certain number who, though addicts, have refused to admit their addiction and have simply taken "cold turkey."

The average physician takes but little interest in the subject. There are several reasons for such apathy. He seldom is called upon to treat an addict. He is hampered in treatment of such people by fear that he may be violating the Harrison Anti-Narcotic law and finally, he does not understand addiction disease. Yet, being a citizen, he should take an interest in problems which are causing so much crime and should be willing to submit to reasonable regulation of his practice by law.

There can be no doubt that opium and opium derivative addiction is a disease. No right thinking physician at present considers this curse as merely a habit. We know that the drug causes distinct physiological changes in the individuals. Practically every system is affected and we also know that the abrupt withdrawal of the drug leads to a definite group of manifestations which cause those suffering from the disease, to commit criminal acts. In these days when crime is so rampant throughout the nation any cause or contributing factor should be thoroughly investigated and treated.

Criminologists now realize that the correct approach to their problem is through medical and psychiatric lines. Lawyers realize that the medical and legal professions must get together in the interest of the public. Similarly we physicians should awaken to the fact that drug addicts are sick people and in our professional capacity it is our duty to study this disease not alone as regards symptomatic manifestations but also with

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a view towards discovering a definite treatment of the condition.

The drugs used in their order of frequency are heroin, morphine and opium. Morphine is derived from opium and heroin from morphine. The manufacture of heroin is prohibited in this country, yet it is most frequently used. Some of this drug is smuggled into the United States but a greater amount is manufactured from morphine which finds its way into the country through smuggling and other means to be related in this paper. When it was contemplated to pass this law forbidding the manufacture of heroin, I warned the public in addresses and articles that such a course would lead to dire results. This has proven to be a fact. So great is the profit realized by the drug vendor that he feels that he can afford to employ a chemist to effect the necessary change from morphine to heroin. The chemicals employed are often impure and the resultant effect on the addict is pronounced.

I have personally seen areas of sloughing skin and terrible looking ulcerations. The disfiguration resulting from hypodermic administration is permanent. This is particularly so with the underworld addict. If a person using drugs took the proper precautions to sterilize the needle and thoroughly cleanse the site of injection, little if any disfiguration would result. The underworld addict seldom takes the time to properly prepare his needle or himself. It is a common occurrence to inject through the clothing. Many will place the heroin in a spoon, add a little absorbent cotton and with a match heat the contents. At the same time the needle is held in the mouth. Tetanus is not uncommon among these people and yet, when one considers the lack of sanitary precautions it is truly remarkable that there are not many more tetanus victims. Abscesses are frequent and these are usually filled with the foulest smelling pus. It is necessary to open all windows when you incise such an abscess.

Nor does the underworld addict concern himself about obtaining a hypodermic syringe and needle. These are not absolutely essential in order to "take a shot." He employs a medicine dropper for his syringe and may or may not use a needle. It is not at all uncommon for these people to take "pin shots." The average physician will find it difficult to believe

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the procedure adopted by the addict in taking such shots. The site of injection is selected and the addict takes an ordinary safety pin and jabs himself or tears the skin. Then the drug is slowly applied with a medicine dropper. Where the addict possesses a needle he simply attaches it to the end of the medicine dropper. This makes a very serviceable syringe. The addict is not particular in selecting a site of injection. Many seem partial to injecting into the skin and muscle of the abdomen. Others prefer the thigh, buttocks or scapular region.

Administration of the narcotic by nose is quite common, and as a rule the drug employed is heroin. In addiction the addict may alternate between heroin and cocaine. Definite changes in the nasal mucosa and septum may result from the use of the drug by sniffing. At first there is a redness of the septal mucosa due to irritation. This is followed by ulceration and in time perforation of the septum results. Such condition is common amongst those using both heroin and cocaine, but my observation and study of these individuals has proven that either drug may cause such perforation. In quite a few there is a breaking down of the bridge of the nose producing a saddle effect. In practically every case a blood test was taken and the results proved that the condition was due directly to the mode of administration of the drug and not to syphilis.

The systemic manifestations produced by opiate addiction are of prime importance and demonstrate conclusively that there is a distinct interference with the physiological functions of the various organs.

Respiratory System: The effect on the nose in "sniffers" has already been described. The majority of addicts suffer from bronchitis. We know that opiates, given in medicinal doses, aid in the treatment of certain types of bronchitis. This is due to a decrease of bronchial excretion. But, in the addict, such action ceases and the drug acts as an irritant rather than as a sedative. This seems peculiarly so as regards the respiratory system. Tuberculosis is common amongst addicts. This may be attributed to several causes. The irritation of the bronchi, the slowing of respirations, and the lack of appetite plus, in the underworld addict, his carelessness as concerns bodily care,

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all contribute to the production of tuberculosis. Once an addict has developed this dreadful disease he is practically incurable. In fact, treatment of such individuals with a view to cure is attended with great danger.

Digestive System: The drug causes a decrease in salivary, gastric and intestinal secretions. As concerns the mouth the effect is most marked. The mouth is alkaline in reaction. Because of the decrease in saliva the mouth becomes acid and there is a pronounced effect upon the teeth. Fifteen years ago I described this effect and lately my discoveries have been verified by Dr. Hecht, the dentist connected with the Department of Correction in his work with the prisoners at the Workhouse. The teeth decay and cavities form at the gum-line. Dr. Hecht has made an exhaustive study of this condition. The breath is foul and the mouth dry. Addicts crave oranges and other fruits.

Many a person who has taken treatment for addiction and who has apparently been cured has returned to the use of the drug because of toothache. While an addict is using the drug he does not know what it is to experience pain. It is therefore an essential part of every treatment to advise dental care before or during such treatment.

The drug decreases the secretions of the stomach and intestines. The result is a loss of appetite and flatulence. When an addict is under the influence of the drug, eating is a minor consideration. There is a stagnation of bile. Any number of addicts suffer from catarrhal jaundice and quite a few present enlarged liver, cholecystitis and cholelithiasis.

Constipation is the rule and as a result of this there are often toxic manifestations such as headaches, dizziness and, at times, a rise in temperature. Hemorrhoids are of common occurrence. Loss of weight is the rule with the underworld addict.

Circulatory System: Opiates directly affect the heart muscle. Myocarditis is present in a great number of the cases. The blood pressure is low and the pulse rate decreased. Anaemia is to be noticed particularly among underworld addicts and although present in many of the middle class and social addicts

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it is nevertheless not as marked. The reason is that these latter obtain better "stuff" and lead a more or less regular existence. Any change in the weather affects the victim and when it is a muggy day he is most uncomfortable.

Genito-Urinary: While taking the drug there seems to be no disturbance of this system. However, in many cases I have had complaints of retention and even suppression of urine during treatment, using reduction system. Suppression may occur in individuals suffering from nephritis. As a rule, the reduction method is the safest with such people. At any rate, no case has ever terminated fatally.

Generative System: Opiates have a pronounced effect upon both males and females. In the male the desire for sexual relationship is lessened and although there may be erection, intercourse if attempted is in most instances without result. In the female there is a cessation of menstruation. This is so in the vast majority of cases. Where both are under the influence of the drug and intercourse should be attempted there is either no climax or else, if there should be, impregnation does not occur. If a child is born to a couple where either husband or wife is addicted, such infant is not as a rule, a normal child. As it develops, one notes that it is an anaemic, neurotic individual. In many instances I have been consulted where a child was born to parents, both of whom were addicts, and at the time of intercourse had been without the drug temporarily. Such children rarely thrive. Any number die in early infancy. I remember distinctly a case that came to my notice about twelve years ago. A man and his wife were arrested on a charge of possessing narcotics. They were both addicted to the use of heroin. In questioning the woman as to the cause of her addiction she stated that she took drugs because she did not want children. Both she and her husband were sent to the Workhouse for treatment. Several years later the husband was again arrested and his wife came to visit him. She asked for me and I was surprised to note how well she looked. She told me that soon after their release from prison she became pregnant and gave birth to a boy. "Now," said she, "I'm going

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back to the drug again because I don't want any more children." She stated that her little boy was a weak, neurotic child.

When undergoing treatment with the reduction method both male and females commonly complain of intense sexual desire and nocturnal emissions. They ask for bromides or other seda-

Nervous System: The majority of those who become addicts are Constitutional Psychopaths before becoming addicted. Because of this unstable mental state they readily yield to bad environment and evil associations. In former years quite a number of people became addicted as a result of carelessness of physicians, but at present one rarely obtains such a history. One often hears people say that if the addict will exert some will power he would soon be cured. The addict cannot exert such power, for the drug destroys that power of control. The victim becomes a slave to the drug and his moral sense is seriously affected. If in need of the drug he is driven to desperation and will commit unlawful acts, if necessary. Women sell their bodies in order to satisfy their craving for the drug.

The addict is a pathological liar. Anything he says must be corroborated. He as a rule, is boastful and believes that he is "a mile ahead" of everybody in his reasoning. Song writers and authors are amongst those who take the drug. They believe that it aids them to concentrate and to properly plan their work. Doctors, lawyers, nurses, actors and actresses; in fact, there is no class or creed when it comes to victims of this terrible curse.

The drug may produce a true toxic psychosis. As a rule, such mental disturbance is seen in individuals of the mixed addiction type. By this is meant that they take both heroin and cocaine. It is not at all uncommon for a heroin addict to develop delusions of persecution as part of his withdrawal symptoms.

It is erroneous to say that all opiate addicts present pinpoint pupils when taking the drug. The third nerve becomes accommodated to the drug and it is necessary for the addict

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to take a large dose before such pupil is presented. The pupils, other than the pin-point, react to light and accommodation. Other reflexes are variously affected. If the addict simply takes sufficient of the drug to keep him "in balance" there may be no interference with patellar or other reflexes. If, however, he is in need of his drug then the reflexes may be markedly exaggerated.

When an addict is deprived of his drug he is indeed a miserable being and suffers from characteristic withdrawal symptoms. These are yawning, sneezing, lachrymation, and chilly sensations; nausea, vomiting and violent abdominal pains. Diarrhoea which may be bloody as may the vomitus. A sensation as if the muscles were being torn from the skeleton and a marked feeling of apprehension which causes extreme restlessness on the part of the patient. At this time he may exhibit suicidal tendencies or delusions of persecution. This suicidal tendency sometimes amounts to an actual obsession and may be present not alone when the addict is deprived of the drug, but even when under its influence. As a result any number of these unfortunates attempt and actually do commit suicide. It is therefore necessary to be constantly on the watch when treating such people.

The treatment of addiction has sorely puzzled the medical profession. Every once in a while one learns of a new treatment which is practically a specific for the condition but trial convinces the physician that it is only a form of treatment and not a cure. With the methods employed to date, all that has been accomplished is to take the person "off the stuff." In the eighteen years that I have treated addicts I have had experience with practically every new treatment. The medical literature is filled with descriptions of such remedies. The "cold turkey" rapid reduction, slow reduction, hyoscine, Towns-Lambert, Narcosan, Kahle and what not. It seems that in no case has there been sufficient attention paid to the fact that many addicts were abnormal before they ever began the use of the drug; that not alone must one eliminate the drug from the body but, what is more important, one must eliminate the crav-

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ing for the drug. Simply taking the person "off the drug" and letting him go without attempting rehabilitation and study of the individual in the future is a useless procedure. In one treatment the drug is abruptly withdrawn and the patient receives only a cathartic and possibly a sedative. He vomits and has diarrhoea for about three days. He is carefully guarded against attempt at suicide. This is the so-called "cold turkey" treatment. You may employ this in a prison where the patient has no other choice, but you never will give such treatment to a private individual.

The reduction system is good if it is a slow reduction. The patient does not require more than two to three grains in divided doses, throughout twenty-four hours. The amount is reduced at certain intervals. Such intervals are at the option of the physician. Every patient should receive a thorough physical and clinical examination before treatment and several times during the treatment. Rapid reduction is useless. Before the patient becomes accustomed to the weaning from the drug he is "off it." The desire for narcotics is not eliminated and he will soon obtain a supply. When a man is under arrest he may find it more difficult to obtain such a supply, but you may be certain that there is smuggling of drugs in most of our prisons. The slow reduction gives the individual an opportunity to realize that he can actually get along with a very small quantity of the narcotic, and he eventually realizes that he can do without it altogether. The withdrawal plus the psychic treatment should take at least two to three months and then the individual should be sent to some resort or institution for rehabilitation treatment. In beginning treatment it is essential to note any physical defect and to correct that. As already noted particular attention should be paid to the teeth. The hyoscine treatment is seldom employed at the present time. It led to after effects which drove the patient to re-addiction. This drastic treatment so weakened the individual that as soon as he was released he would hunt up the peddler in drugs. Many persons developed active tuberculosis and interference with hearing and vision. The late Dr. Bishop who had great experience with that form of treatment, and was its greatest exponent, condemned it in my presence shortly before he died.

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The Towns-Lambert treatment is still in use in a certain institution in the City of New York.

The Narcosan treatment was condemned by a committee of physicians appointed by his honor, the Honorable James J. Walker, Mayor of the City of New York, who deserves much credit for exposing this remedy. I had an experience with this method of treatment many months prior to the appointment of the committee by the Mayor. A gentleman came to see me at the Tombs and asked me to try the treatment on my addicts. I told him that before I consented he would have to convince me as to its worth. At that time this man told me that once the addict took this treatment he would never again touch narcotics. I answered, "If you have such a treatment, then I not only consent to your request but I actually implore you to try it on our addicts." I therefore told him to send the creator of the method to see me. This man came and among other things he told me that should the addict receive any morphine while undergoing treatment he would go into a state of tetany.

I went among my addicts and spoke to them. Said I, "Boys, a certain doctor has come to me with a treatment for addiction. He claims that it is a cure. I am not going to force you to take that treatment, but am asking for volunteers." One man stepped forth. He said, "Doctor, you may not believe my story and in fact, I don't blame you, for you know our failing when it comes to telling the truth. My father is a Pittsburgh millionaire and he has disinherited me because I am an addict. Let me take the treatment. I don't care if it kills me, but if there is really an opportunity for permanent cure it is worth risking my life."

I accordingly took this man to another part of the prison and isolated him. I had watched him every minute of the day and night, and I insisted that the doctor come and personally administer all medication. The addict received a thorough physical and clinical examination and was found to be in good condition. From the very outset of treatment he vomited and suffered from diarrhoea. Vomiting was projectile in character. He could neither eat nor sleep and was soon in miserable condition. The doctor assured me that the vomiting would soon cease and the patient make a fine recovery. On the third day

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he was still vomiting and that morning I received a call from the keeper to hurry to the man. The keeper said, "I guess this fellow is dying." When I reached him he certainly did look as if he was about to "pass out." He was cyanosed, his pulse was weak and irregular and he could barely talk. Seeing his dreadful condition I determined to give him a hypodermic of morphine and take a chance that he would not go into a state of tetany. He would surely die if he continued in his present condition, so I decided to risk the morphine. To my surprise the patient rallied and there was no sign of tetany. I continued with the morphine, placed him on reduction and he made a wonderful recovery. I sent a report of the case to Mr. Wallis, the then Commissioner of Correction and warned him against the use of that treatment.

I was recently visited by a certain doctor who wished to introduce the Kahle treatment in the Tombs, but after a lengthy interview he convinced me that there had been no satisfactory follow-up treatment of cases and I therefore considered his statements concerning results obtained as unfounded.

I have tried and rejected a score of treatments and in particular have I been prejudiced against substitution methods where the opiate was abruptly withdrawn and some other drug substituted. At present, however, I am enthusiastic concerning a treatment which I believe has every possibility in bringing about a true cure of addiction. The creator of this treatment is Dr. Jacob Glass of New York City, and in a paper to be published in the near future, the doctor promises to reveal the constituents of his remedy. It is now termed "Anti-Narcine" and is in no sense a patent remedy. My contact with the doctor convinces me that he is interested in addiction from a humanitarian viewpoint. I insisted that I be permitted to study several patients under treatment and was greatly impressed. The medication is a powder which is administered to the patient by mouth, the powder being dissolved in either a cup of ordinary tea, warm milk or water. Only one dose a day is given. Prior to the administration of the remedy the patient receives a thorough physical and clinical examination. The treatment is conducted either at home or in a sanitarium and the patient attended by a day and night nurse. Soon after

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receiving the powder the patient goes to sleep. The first day he may sleep for seventeen hours. He awakens, goes to the toilet, then eats a hearty meal. On his return to bed he again sleeps. The second day his sleep is of shorter duration than on the first and on the third day he sleeps for several hours. At each awakening he eats heartily and is provided with good substantial food. He actually gains weight during this time. One patient gained seven pounds in one week. That is the time required to take the patient off the drug. While under treatment my study of several patients showed that their color was good and the sleep was natural. There was absolutely no restlessness. The pulse-rate slowed from day to day while the respiration increased. In one patient respirations were as high as fifty on the third day and then they began to gradually come to normal. The patient is carefully watched and if the respirations should reach fifty he is awakened, given gastric lavage and a colonic irrigation. He then again sleeps and there is an immediate decrease in the frequency of respiration. The dosage is given but once daily and depends on the weight of the patient, his age and physical condition. Treatment is contra-indicated in asthma, goitre and cholelithiasis. As with all other treatments it would be both unwise and dangerous to administer treatment to tubercular patients.

There are many advantages to be found in employing this treatment. First: Medication is administered only once a day. Second: The patient is in peaceful sleep and one need not fear that he will commit suicide. Third: He does not vomit or suffer from other symptoms requiring constant attention. Fourth: He is in no condition to attempt to smuggle in drugs. Fifth: He actually gains weight and strength. Sixth: Within twenty-four hours after the first dose of medicine he develops a positive aversion for opiates.

The cases treated are receiving careful follow-up treatment. Each patient is required to report at least once every month for a forty-eight hour observation and every precaution is taken at that time to prevent smuggling of drugs to the patient. This is the only rational procedure to ascertain if a patient is truly cured of his addition. My observation of the "Anti-Narcine" treatment leads me to the belief that there finally has been

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discovered a most valuable remedy which I trust will prove a boon to humanity.

Drug addiction is such a dreadful curse. When an individual is in need of the drug he will stop at nothing, not even murder, in order to alleviate his suffering. He is truly a sick man and prison is no place for a sick person. Nor is life imprisonment an advisable remedy as concerns the criminal addict. We could as well say that it would be advisable to send to prison for life all tubercular and cancerous patients criminally inclined. We, the public, are directly responsible for the creation of the criminal addict and it is our duty to give him proper medical attention. If, with our present system of segregation of prisoners we place a boy of sixteen who is not a criminal, in direct contact with a fourth offender addict, that boy will positively become a criminal. Jail is no place for a sick man and we have no right to arrest a man simply because he is sick. I hope that the day will soon arrive when common sense will dictate the creation of a hospital for the treatment of the non-criminal addict so that he will not be forced to take his treatment in a penal institution. That is the status of addiction today. Addiction is responsible for twenty per cent of crime. The physician will have much to say in the near future as regards the study and treatment of criminals and also as regards the actual administration of penal institutions.

In conclusion permit me to say that much of the drug that is believed is smuggled into this country is really grown in the United States. On at least twenty-five occasions the drug has been cultivated in this land and in order to convince yourself of this fact you may select any of the southern states, during the warm months, which cultivate the white poppy. Particular success was had in Tennessee. Mr. J. Howard Randerson, of Albany, New York, has compiled a list of those who have grown the drug, where the drug was grown and the morphine content of such opium.

The doctor must awaken to the fact that he is, so to speak, as much a health officer as the lawyer is an officer of the court. In the interest of humanity, it is duty to study narcotic addiction and to aid in the solution of this problem.

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Problems in Dermatology[1]

III. *Persistent Urticaria*

By FORTUNATO A. DIASIO, M.D.

Another source of great anxiety to the physician is a persistent urticaria which keeps the patient under a continuous nervous strain and the conscientious dermatologist tapping all his therapeutic reservoirs in order to bring relief. The difficulty experienced in handling these cases lies mainly in the fact that in a considerable number of patients the cause is both obscure and difficult to detect even after a careful and comprehensive history (noting the presence or absence of a combination of the following symptoms: hay fever, asthma, angioneurotic edema, eczema and previous attacks of urticaria) has been taken, skin tests for hypersensitiveness have been performed, test diets have been given an extensive trial, patch tests with various substances under suspicion have been done and prolonged clinical observation of the patient has been carried out.

One fact stands out above the rest in this etiologic melting pot and that is that hypersensitiveness does not explain all phases nor all instances of urticaria. There are other causes remote from that of hypersensitiveness, such as emotional distress, endocrine dysfunction, foci of infection, parasitic infestations, reflex irritation and physical agents (i.e. light, heat, cold, etc.), which are to be contended with, as they are capable of producing eruptions of the urticarial group. In these instances where the incriminating cause never gives rise to the hypersensitive state though responsible for the urticarial eruption present, we may even obtain on testing positive, non-specific cutaneous reactions which merely indicate that the patient is in an allergic state but that the latter does not play a rôle in the production of the dermatosis.

For the urticarias whose etiology can be definitely demonstrated by a history of food dislikes or disagreements, by skin tests for hypersensitiveness and by the clinical test of the disappearance of symptoms when the offending material is with-

[1]A clinical lecture from the Department of Dermatology, Lincoln Hospital, New York City.

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drawn and the recurrence of symptoms during a well period when the noxious substance is again brought in contact with the patient, the simple exclusion of the sensitizing foods or substances will invariably terminate the attack with joy all around. Abstinence from the offending article does not only relieve the patient of the present outbreak but will also in the majority of instances gradually desensitize the patient after an interval which may vary from a few weeks to one or more years. However, some patients will never regain tolerance to our utter disappointment. In such cases as well as in those in which the injurious food cannot be eliminated from the diet, tolerance for the foreign proteins and non-proteins should be established by the gradual ingestion of increasing amounts of the offending substance. Desensitization by the injection method is rarely effective.

The treatment of the urticarias due to remote causes like the physical agents, the psychogenic causes, etc., is also relatively simple and the results most gratifying if our therapeutic efforts are directed to the proper channel by a correct etiologic diagnosis.

A most trying situation exists only when the cause cannot be determined in spite of all our efforts to ascertain it. Here, empirical treatment is our only recourse and we proceed as follows:

Since food sensitization frequently exists without skin reaction, we place the patient on one of Rowe's elimination diets (Table I) which contain only a few foods to which patients are frequently allergic. If relief is not obtained within 2 weeks, another diet should be tried. This change in diet must be kept up until relief is given to the patient. As the allergy is helped, foods may be gradually added, one or two a week, the vegetables and fruits first, and then the meats, starches and finally milk, eggs and wheat. In children it may be necessary to try milk after 2 to 3 weeks in order to maintain proper nourishment.

All possible incriminating or etiologic factors known to be at times responsible should be attended to without delay. In our experience these causes are too often overlooked and they account for many of the miraculous results that have been reported in the literature.

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Colonic irrigations with sodium bicarbonate (for details, see part II) should be administered by an expert at least twice weekly but preferably daily. After the initial dose of castor oil, saline purgatives (of which we prefer magnesium sulphate . . . ℥s.s. in a half glass of tepid water on rising) should be taken every third day. These should be followed by intestinal antiseptics:

℞ Thymolis ..... gr. xii
Betanaphtol ..... gr. xii
Phenyl. salicylat ..... gr. xxxvi
Sodii salicylatis ..... gr. xxv
Saccharum lactis ..... ad. ℥ iii
M. et pone in chart. no. xii.
Sig: One powder in water t.i.d.p.c.

Warm, bran-corn starch baths are also indicated. A muslin bag containing ½ lb. of bran is attached to the hot water faucet and the water is allowed to seep through. To a half tubful of hot water 2 lbs. of corn starch are added. Cold water is then added until the desired temperature for the bath is obtained. The patient should be immersed for at least 20 minutes. A great deal of relief may thus be enjoyed by the use of a daily bath.

Of the numerous remedies recommended, those remedies which we advocated for generalized neurodermatitis are also efficacious in chronic urticaria because in both there is present an allergic state. Thus, in those showing a vagotonia, atropine is valuable. Where the calcium content of the blood is low, calcium gluconate (Sandoz) and parathyroid extract are helpful. We order routinely calcium (orally and intravenously) and parathyroid (orally and intramuscularly) irrespective of the findings in the blood. Except in cases of hypertension, ephedrine sulphate in doses varying from 3/8 to 3/4 of a grain t.i.d,p.c. is most valuable.

The sedative action of eczebrol (intravenously), triple bromide tablets (effervescent), antipyrine and pantopon (Roche) is also of benefit and usually indispensable.

Alkalies are given internally with beneficial results to combat the acidosis present which is considered to be an important etiologic factor. Of the various palatable preparations on the market, we prefer Warner's Alka-zane. It should be taken in

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TABLE I.

I. "ELIMINATION DIETS" (Rowe)

	Diet No. 1	Diet No. 2	Diet No. 3	Diet No. 4	Diet No. 5
Cereal	rice*	corn	rice tapioca	rice rye	Milk alone for the test
Bread	none	corn pone†	none	rye rice‡ Rye crisp	period. Two to three
Meat or Fish	lamb	bacon chicken	beef	cod, halibut and white fish	quarts a day.
Vegetables	lettuce spinach carrots	squash asparagus peas artichokes	tomatoes celery string beans	lettuce carrots peas beets	
Fruits and Jams and Fruit Drinks	lemon pears peaches	pineapple apricot prunes	grapefruit pears peaches	pineapple apricots pears	
Miscellaneous	sugar olive oil salt olives (unstuffed) maple syrup gelatin	sugar Mazola oil salt	sugar Wesson oil salt gelatin maple syrup	sugar olive oil olives (unstuffed) salt	

1/3 cup rye flour
2/3 cup rice flour
6 level tsp. baking powder (Royal)
4 level tsp. sugar
1/4 tsp. salt
2/3 cup water
1/2 tsp. shortening

This recipe makes eight small muffins. This recipe doubled can be made into a loaf. Perhaps more palatable if toasted. Royal Baking Powder contains no egg.

* Natural Rice is preferable because of vitamin content.
‡ Rye rice bread.
† Corn pone is made with cornmeal, salt, water, and Crisco.

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teaspoonful doses: 2 teaspoonfuls to a glass of water every 2 hours throughout the day. Some men give a 3% solution of sodium bicarbonate intravenously every day.

Pulay, as a result of his blood chemistry findings, suggested the use of cincophen or its derivatives to reduce the uric acid in the blood. We give 20 grains of neocincophen t.i.d.p.c. with favorable results.

Topical remedies are also useful. Equal parts of spt. vini rect. and aquae hamamelidis make an excellent anti-itching lotion to apply to the lesions. The following also gives relief:

℞ Phenolis ..... ʒ. i
Mentholis ..... gr. x
Calaminae praep .....
Zinci oxidi ..... a.a. ʒ. i
Spt. vini rect.
Glycerini ..... a.a. ʒii
Aquae hamamelidis ..... q. s. ad. ʒviii
M. et Sig: Apply as often as necessary.

The administration of yeasts and fermented milk, though recommended mostly on the basis of combating the intestinal flora and benefitting the auto-intoxication and intestinal putrefaction, has not given encouraging results in our hands to warrant its continued use. The same holds true of non-specific protein injections of such substances as peptone, typhoid, staphylococcus or streptococcus vaccines and sterile milk or its modifications in the majority of cases.

Whenever we encounter a patient who is refractory to the above therapeutic regime used over a long period of time, we aim to break the therapeutic fastness of the case by switching to autohemotherapy (as outlined in part I). After a series of whole blood injections the dermatosis usually yields to another therapeutic siege with the above measures.

Recently Girard, Peyre, Gougerot et al. have shown that urticaria together with other dermatoses resulting from shock phenomena are influenced favorably by the protective action of eosinate of cesium. At present we are not able to pass judgment on this latest treatment. The technic is simple: it consists in the intravenous injection of 5 to 15 c.c. of a 10% aqueous solution of eosinate of cesium, the injections being repeated as often as necessary, every 2 to 7 days (i.e. as soon as the symp-

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toms of the disease reappear) for no more than 10 doses. If there is no favorable effect by the tenth injection, it is useless to continue. It is necessary to proportion the quantity of eosinate of cesium to the intensity of the disease whenever a dose of 5 to 15 c.c. is unsuccessful therapeutically. The only difficulties established are the rarity of the product and the difficulty in obtaining the drug in the pure state. An impurity will render the product toxic while an imperfection in the preparation will make it ineffective.

Since we do not have an effective or specific remedy for urticaria, we do hope that this medicament will prove clinically efficacious and solve for all time the urticaria problem.

[This series of articles on PROBLEMS IN DERMATOLOGY, by Dr. Fortunato Anthony Diasio, the dermatology editor of this journal, consists of:

I. Obstinate and Recurring Psoriasis.
II. Generalized Neurodermatitis.
III. Persistent Urticaria.
IV. Chronic Epidermophytosis of the Hands and Feet.
V. Recalcitrant Sycosis Vulgaris.
VI. Extensive Favus.

This therapeutic series will be followed by a discussion of the diagnosis of various cutaneous diseases].

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Upper Extremity Disability

By A. M. RECHTMAN, M.D., F.A.C.S.

The anatomical situation of the upper extremity helps to protect it from injury and disability, and lesions of this part are therefore less frequent and produce disability often less severe than similar ailments in parts that bear and support the body weight. The advent of the present mechanical age is increasing the traumatic ailments of the upper extremity. The recent progress of orthopedic surgery has increased our knowledge of the various congenital and acquired ills of the arms and hands.

In this communication a number of upper arm conditions are considered from the standpoint of differential diagnosis, prophylactic or active treatment, depending on which of these is of paramount importance in the handling of the case.

The most common conditions of the upper extremities, neuritis, arthritis and periarthritis have been previously discussed,[1] and the differential diagnosis is shown on the chart:

Neuritis is relatively uncommon. Pain on pressure over the nerve is a constant finding and should suggest the diagnosis. In arthritis motion of the joint is restricted in every direction, whereas, in periarthritis motion is restricted in one or more but not in all directions.

The management of diseases of the extremities demands a knowledge of the anatomy as conducive to a proper understanding of the condition. The two extremities offer a means for comparison of the range of motion in the joints, of the muscle tone and the size. The joints are superficial making a clinical and roentgen ray examination easier, while knowing the insertion of ligaments and tendons clarifies the subject of sprains and strains.

OBSTETRICAL PARALYSIS or Erb's palsy, a partial or complete paralysis of the muscles of the upper extremity, is not uncommon. Prophylaxis is essential, and early diagnosis and treatment extremely desirable. The cause may be a difficult or protracted labor, but it is usually caused by traction on

[1]Rechtman, A. M.; Pain and Disability of the Upper Extremity. To be published.

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DIFFERENTIAL DIAGNOSIS

	Neuritis	*Arthritis*	*Periarthritis*
ETIOLOGY	Metabolic: Mechanical: Ex. & endogenous poisons: Cachectic dis: Infectious dis.	Every known organism.	Strain plus infection.
ONSET	Rapid—few hours to 24 Insidious in cachectic dis.	Usually insidious unless acute infection.	Usually insidious.
DISTRIBUTION	Along course of a nerve.	One or more joints.	Single or multiple.
PAIN	Acute—sharp and shooting. Chronic — parasthesia with loss of sensation.	Pain always present but not characteristic. Diagnosis made by associated findings.	Pain on change of position.
TENDERNESS	Exquisite to pressure along course of nerve.	Local tenderness.	Often absent at rest. Present after activity.
ATROPHY	In distribution of involved nerve.	Joint and periarticular tissues swollen. Adjacent parts atrophied.	Usually normal.
DEFORMITY	Claw hand. Wrist drop.	Usually flexion and abduction deformity.	Usually normal.
LOSS OF MOTION	Limited to affected muscle group. Free passively.	In every direction.	In one or more directions but not in all.
MUSCLE SPASM	—	+	+ in one or more directions.

the head, or violent twists of the neck or arm, in a head presentation; or to undue haste, pulling and twisting, in the birth of the head, in a breech delivery. Thomas[2] states that paralysis of the arm is due to a nerve injury caused by a subluxation or

[2]Thomas, T. Turner: Falling of the Humerus Associated with a Dislocation of the Shoulder and Paralysis of the Arm. J. of Nervous and Mental Diseases, Vol. 38, No, 4, April, 1911.

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dislocation of the humeral head during delivery. While the nerve roots of the brachial plexis may be torn, usually they are only stretched, or hemorrhage may occur in the nerve sheath.

There are three types of obstetrical paralysis: 1—The upper arm type, the most common, involves the fifth and sixth cervicle nerves, the muscles affected being the abductors and external rotators of the shoulder and the flexors and the supinator of the forearm. 2—The lower arm type as the name implies involves the forearm alone, and 3—the complete type affects the entire arm. It occurs if the nerve injury is severe, and fortunately it is rare.

If the patient is not treated the unaffected muscles contract and external rotation and abduction at the shoulder, flexion at the elbow and supination in the forearm are lost or diminished. The weight of the arm and the force of gravity cause the humeral head to subluxate and the part assumes the so-called "policeman's attitude."

Prophylactic treatment demands patience upon the part of the obstetrician, in other words, resistance to the temptation to interfere too early. If traction during a delivery is necessary it should be made during a labor pain, and as nature is thus supplying the push the obstetrician acts as the guide, as it were, to utilize that force. Traction pulls on the baby and it is then that the injury to the nerves occur.

Every new born baby should have a complete physical examination. If the child is suffering from a birth palsy the arm lies limply at the side. The condition occasionally is bilateral.

In treatment the affected arm is placed above the head and maintained by tying the wrist to the head of the crib until a light splint can be made to hold the arm in right angle abduction and in external rotation. The arm should be moved through its normal motions once a day as soon as soreness ceases, and heat and rubbing are then also beneficial. Recovery is often complete in a few months if the nerve injury has not been severe. Depending upon the nerve injury recovery may be rapid or delayed, and partial or complete paralysis and atrophy may persist. If, with proper treatment, there is no improvement in three to six months, an exploration of the

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brachial plexis is advisable, but this is not often necessary. Untreated cases with muscle contraction require stretching or even extensive tenotomies and fixation of the shoulder and arm in plaster in abduction and external rotation and the forearm in supination. When the wounds have healed the treatment consists of baking, massage, and active and passive motion to maintain the correction.

RECURRENT DISLOCATION OF THE SHOULDER: The usual causes of recurring dislocation of the shoulder are a lax or torn capsule and weak muscles, often due to too early use after a traumatic dislocation. Prevention is the keynote in the treatment of this serious injury with its recurring disability. Motion of the shoulder, especially abduction, should be restricted for two to three weeks after a dislocation. After the first few days following reduction in the acute dislocation, a pin to fasten the sleeve to the coat to prevent abduction and a sling suffice, while at night the arm may be bandaged to the body.

If the dislocation occurs seldom and at long intervals muscle and capsule weakness may be inferred. Fix the arm to the side for a time and then treatment with physical therapy is indicated to strengthen the atrophied muscles. If this treatment fails or the recurrence is frequent operation is indicated. The number of operations described are many. An excellent operation was recently described by Nicola.[3]

The long head of the biceps is divided in the upper third of the arm and the proximal end passed from above downward through a drill hole made from the point of division of the tendon to the center of the articular head. The severed tendon ends are overlapped and sutured. The arm is kept at the side for three weeks. The anatomical principle is somewhat analogous to the ligamentum teres in the hip. In some of the lower animals the long head of the biceps passes through the center of the head of the humerus. The long tendon of the biceps in the bicepital groove is perhaps an evolutionary displacement outward from the center of the head.

FRACTURE OF THE ELBOW IN CHILDREN: All fractures about

[3]Nicola T.: Recurrent Dislocation of Shoulder, Its Treatment by Transplantation of Long Head Biceps. American Journal of Surgery, 815, June, 1929.

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the elbow joint in children should be treated with the arm in acute flexion and in supination (Jones' position), excepting fracture of the olecranon process of the ulna which is treated with the arm in extension. The physician fails at times in treating these injuries because he does not first reduce the fracture. Constant vigilance in the first hours after reduction is necessary, so that if swelling occurs the flexion may be decreased. This is the prophylaxis of Von Volkmann's ischaemic paralysis. All efforts at reduction, though firm, must be gentle to prevent a myositis ossificans.

Böhler[4] has proven anatomically and clinically that supra condylar fractures of the humerus after reduction should be dressed with the forearm in pronation because the pronator radii teres muscle is taut when the forearm is in full supination and usually pulls the lower humeral fragment into the position of varus and flexion.

ISCHAEMIC PARALYSIS: The early symptoms are pain, swelling, discoloration, loss of sensation and motion, and later contractions. In the usual deformity the hand is flexed on the forearm and the proximal and distal inter-phalangeal joints are flexed to a right angle. The part is cold and trophic ulcers form due to constriction of the nerves.

In a supra-condylar and other fractures about the elbow avoid constrictive dressings. Early after reduction watch for swelling and let this be a guide as to the degree of flexion in the treatment. If the paralysis occurs, splint the hand in hyperextension. If contraction occurs gradual correction of the deformities by stretching and splinting, as suggested by Jones[5] gives a slow but usually progressive improvement. Physical therapy is a valuable aid.

MYOSITIS OSSIFICANS is most common after dislocations of the elbow. The original trauma causes a tearing of muscle attachments and probably a stripping of the periosteum and hemorrhage. When the bone forming tissues organize the condition known as myositis ossificans results. The onset is insidious and when the condition is advanced motion may be

[4]Böhler, Lorenz: Treatment of Fractures. Translated by M. E. Steinberg, Wilhelm Maudich, Vienna, 1929, P. 4.

[5]Jones and Lovett: Orthopedic Surgery, New York, Wm. Wood & Co., 1923, P. 97.

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entirely restricted. A dislocation of the elbow without fracture occurs and is reduced, and four or six weeks later the patient complains of increasing stiffness. X-ray shows a cloudiness which is seen on repeated x-ray examination to go on to bone formation.

Every dislocation at the elbow should be considered a potential case of myositis ossificans. Reduce the dislocation, and place the arm in acute flexion and at rest until recovery of the injured tissues is complete; that is, until all signs of irritation, swelling, and pain have subsided. If the condition occurs, rest is indicated until all bone proliferation ceases and excision of the new bone may then be attempted. At times an arthroplasty is required to restore motion.

DUPUYTREN'S CONTRACTION is a deformity of the hand caused by a contraction-fibrosis of the palmar fascia and its prolongation in the fingers. It starts as a local process and may extend to involve the entire palm and all the fingers. The cause is unknown. Various injections into the fibrosed tissues have been tried with poor results. Treatment consists in the excision of the palmar fascia and its prolongations to the fingers.

INFECTED HAND: Infections of the hands are becoming a more common and often a serious and disabling condition. Trivial injuries often disregarded such as puncture wounds from pins, needles, splinters and the like, account for many of these cases.

Kanavel divides the infections of the hand into the superficial and the deep. Examples of the superficial are felons, paronychia, lymphangitis, tenosynovitis, web space, thenar, hypo-thenar and mid-palmar space infections, in general the inflammatory conditions of the superficial connective tissue. The deep infections are exemplified by such conditions as deep lymphangitis which is much less common than the superficial, supurative tenosynovitis, deep hypothenar and dorsal subaponeurotic space infections, abscess and fascial space infections.

The subject of infected hands contains sufficient material for a paper or a book and Kanavel has written an excellent monograph on the subject. Incisions for the draining of pus

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in the hand are now classical and may only merely be mentioned here. When a case of this type is seen, study the subject and learn to do the right thing at the right time. This will make for better functional and anatomic hands, a shorter period of disability and often a saving of parts which through unwise treatment would necessitate amputation. Two cardinal facts may be mentioned: 1. Never operate unless there is pus. This refers especially to cases of lymphangitis. 2. When pus forms, early drainage by operation is conservative treatment.

Hot wet boric dressings and drainage should be employed for a few days only, as moisture macerates the tissues. Dry heat is then indicated. Encourage active motion as soon as the pain and the spread of infection cease. Some motion is usually advisable after the third day. Local and bodily rest should be enforced until the temperature is normal.

SPRAINS AND STRAINS: Tennis elbow is a strain of the insertion of muscle, usually into the external condyle causing a slight swelling and tenderness. The pain is referred to the point of strain when the affected muscle is used. Jones[6] treats this by placing an adhesive pressure pad over the tender area to express effusion and to aid the reattachment of the loosened periosteum. A band or pad on the tendon above the injury acts as a check or guard, in much the same manner as a workman will take a turn with his rope around a tree when he wishes to check a movement which he cannot do by the direct use of his strength. This prevents the tension on the muscle from being transmitted in its full force to the injured attachment. Strains elsewhere in the upper extremity or in the body, are similarly treated,

A sprained wrist is a common injury. A sprain is a detachment of the origin or insertion of a ligament in contradistinction to a strain which is a similar injury in the course of a tendon or a muscle. The treatment of a sprained wrist is to strap a pressure pad over the painful spot and an adhesive strapping over the wrist, lower forearm and hand to the base of the fingers. If the injury is less severe, the pressure pad and a check strap on the muscles above is usually curative.

[6]Jones, R. J.: Injuries to Joints, Ed. 2; London, 1922, P. 18.

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Chronic strains and sprains are treated with deep massage and a pressure pad over the painful area, and the part is then immobilized for three weeks. Physical therapy is then instituted.

Olecranon bursitis is analogous in pathology to the more common housemaid's knee and it is the result of sprains or trauma to the olecranon process of the ulna in the region of the superficial bursa. Repeated slight injuries, especially of an occupational nature, are of etiological significance hence the name "Miner's elbow." The treatment is the same as for synovial ganglion which will be considered later.

INFLAMMATION OF TENDONS: Acute tenosynovitis is not uncommon, especially of the flexor tendons at the wrist, and is frequently caused by overuse or trauma. There is pain on pressure of the affected muscle, together with discomfort and a creaking sensation on motion. Fixation with an adhesive dressing is effective. One example of this is the snapping finger.

Chronic tenosynovitis is usually tuberculous. The tendon sheath enlarges and the patient complains of a dull ache and local weakness. Excision of the diseased tissue is indicated and when the tendon sheath is opened it is often found to contain the so-called rice bodies.

A ganglion is a localized tenosynovitis over an isolated area of a tendon and appears as a cystic swelling. It may follow a traumatism, but is more often a slowly increasing swelling of unknown cause. The usual location is upon the dorsum of the hand or wrist and the proverbial treatment is to strike the growth with a large book. A pressure pad may prevent the reaccumulation of the fluid. Injection with iodine may cause sufficient irritation so that the walls will adhere and obliterate the tumor. Excision is the only radical cure. Small ganglia often subside and they should therefore be left alone. A compound or multiple ganglion may be tuberculous and should therefore be excised.

CONGENITAL DEFORMITIES: Deformities and anomalies in the shoulder girdle and the upper extremity are comparatively rare and their treatment often specialized. A few of the more common will be mentioned and briefly discussed.

Torticollis, wry neck or twisted neck is a unilateral, pain-

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less shortening of the sterno-mastoid muscle. It is slight at birth and can be demonstrated by fixing the shoulder and drawing the head to the opposite side, when the short muscle becomes prominent beneath the skin. With time the contraction increases and the wry neck is associated with secondary changes as hemiatrophy of the face and curvature of the cervical spine. The cause is usually a constrained intrauterine position and this fact is confirmed by treatment of simple division of the contracted issues which effects an easy and complete cure.

Cervical ribs are not uncommon. They may be rudimentary or complete, present on one side or bilateral. The symptoms as a rule appear in adult life and are usually due to nerve pressure or blood vessel constriction. The diagnosis may be obscure as in the following case. A man aged fifty-five with a four plus Wasserman and blood pressure systolic 190 diastolic 110 suffered with paroxysms of pain for five years radiating down the left arm to the fingers. He was treated for angina pectoris. An x-ray of the heart was ordered and the plates showed a complete left cervical rib and a rudimentary right cervical rib. The heart was slightly enlarged and the aortic arch was prominent. The surgical removal of the left cervical rib relieved the clinical symptoms previously diagnosed as cardiac.

Congenital dislocation of the shoulder and congenital deformities of the elbow are rare.

Pronation of the forearm is usually due to fusion of the upper two inches of the radius and ulna and it is often bilateral. Some improvement may be obtained by removing the radial head or separating the fused area and interposing a free fascial or fatty flap.

Club hand is a condition somewhat analogous to the club foot which is more familiar. It is frequently associated with a defective development or abnormality of the radius or ulna and occasionally due to intrauterine pressure. In the former type correction of the deformity and later a plastic bone operation is necessary. The early results are good, but the end result is usually not so satisfactory. In treating club hand due to intrauterine pressure, manipulation and retention in

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plaster is often curative. Massage and muscle training is important in the after care.

Congenital contractions of the fingers and hammer finger, the fifth is the most common, are readily cured by early manipulation and splinting.

Web fingers are perhaps due to an arrest in development before separation occurs, and a plastic operation suffices to separate the digits.

Supernumerary fingers or polydactylism is often hereditary and the extra digits are usually marginal and rudimentary. X-ray of the part and then amputation is the treatment of choice.

SUMMARY: The joints, nerves, bursa and bones of the upper extremities are heir to the same disabilities as these structures elsewhere in the body. The upper extremity has associated with it disabilities peculiar to itself as Erb's palsy, recurrent dislocation of the shoulder, and Von Volkmann's ischaemic paralysis. Prophylactic treatment is of paramount importance and prevention frequently easy if the results of neglect are remembered.

The aim of treatment in the upper extremity is to re-establish motion, touch, delicacy and finesse, and these are of importance rather than the gross necessities for weight bearing as in the lower extremity. A knowledge of the anatomy of the part is frequently essential in establishing a diagnosis, is understanding the pathology and in properly and efficiently treating the disability. Physical therapy is a valuable aid in the treatment.

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The Effects of Massive Doses of Sodium Bromide on Mental and Motor Control in Normal Human Beings.

By Robert F. Stanley and Donald A. Laird
Colgate Psychological Laboratory

Introduction

Surprisingly beneficial effects on patients suffering from severe mental disturbances have been noted at the Utica State Hospital and by other observers following the administration of massive doses of sodium bromide. Although it has long been known that doses of three to five grains of bromides produce a depressive or mildly sedative effect on the human organism, practically nothing of an experimental nature is on record in the scientific and pharmaceutical literature regarding the effects of the substance on mental and motor control. The massive doses, ranging from 50 to 200 grains, now being used with mental patients, produce such marked improvement that it is desirable to know the specific effects of large doses of bromides on relatively simple mental and motor functions of normal human beings for two purposes. First, this knowledge should throw light on the physiological functions through which the bromides act in improving the mental patient. Second, it should conversely suggest which phases of the mental life of the patient are involved in the disorder.

Method

For the purposes of experimentation, ten Colgate University students were tested every Wednesday and Friday afternoon for a period of ten weeks. At noon on each test day, the subjects took orally either 75 grains of sodium bromide or a control dose of the same amount of ordinary table salt. In order to eliminate any element of prejudice, Mr. Stanley was the only one connected with the experiment who knew which substance each subject took, the taste and appearance of both substances being the same. On each experimental day, half of the men ingested bromide and the other half, table salt. Each subject was given bromide on alternate weeks, so that records were obtained for five control weeks and five bromide weeks. In addition, records were tabulated on the cumulative effects

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of the dose of bromide based on its administration on both the Wednesday and Friday of the same week, since sodium bromide is eliminated slowly from the system.

No definite instances of bromide poisoning appeared during the experiment.

A period of two and one half hours elapsed after the taking of the bromides before the tests, to be detailed, were given. This provided time for the absorption of the substance into the system of the subject.

PHYSICAL TESTS

Pulse and Blood Pressure. The bromide lowered the pulse rate on Wednesdays 3.5% below the rate on control-Wednesdays when table salt was ingested. No cumulative effect of the bromide was revealed on Fridays when the pulse rate was lowered 3.1% below the control rate. The small difference between these percentages is probably inconsequential, but the two days' comparisons are significant in consistently indicating a slightly depressant effect on the heart rate.

Systolic blood pressure was lowered by the bromide 2.2% on Wednesdays, and only 0.4% on Fridays. The lessened effect on Fridays suggests either some physiological adaptation to the bromide or that the larger dose produced by the cumulative effects on Fridays gave different results than those gained from the Wednesdays' dose of 75 grains, or both. There were no changes in diastolic blood pressure.

Respiration. On Wednesdays the bromide lowered the breathing rate by 2.7%, while on Fridays it lowered it 1.1%.

MOTOR CO-ORDINATION TESTS

Reaction time. This was measured with a Marietta chronoscope, using a flash of light as the stimulus. On Wednesdays, the bromide slowed down speed of reaction by 2.8%; on Friday it speeded up the reaction by 0.8%. This shows an over all difference of 5.6%.

Tracing Board. By using the standard stylus board for measuring eye-hand co-ordination, it was found that co-ordination was lessened by 1.1% on Wednesdays and by 2.5% on Fridays.

Body Sway. This was measured for a period of one minute,

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using an ataxiagraph. On Wednesdays the bromide increased the sway by 0.7%, while on Fridays it lessened the total sway by 7.8%.

Discussion. The Wednesday records probably give us the effects of a dose of 75 grains, since it was twelve days following the previous ingestion of any bromide. It will be noted that all three of these motor co-ordination tests show inferior performance on Wednesdays.

The Friday records give the effects of the dose of 75 grains plus an unknown amount still in the system from Wednesday. Accordingly, the Friday records give us the effects of a larger dose than for Wednesday, or the effects of this larger dose of indeterminate amount complicated by possible physiological adaptation. It will be noted that the Friday records are not as consistent in these three tests as are the Wednesday records. This parallels the clinical experience with the use of massive doses of bromide where the reactions of the individual patient have to be watched closely as a guide to further use of bromide; and also where the effects vary to some extent with the mental diagnosis.

TESTS OF MENTAL FUNCTIONS

Lag of Attention. The Marietta complication clock was used for the test. No effects appeared on Wednesdays, but on Fridays the lag was reduced (improved) by 6.6%.

Addition. By means of the Woodworth and Wells successive addition of digit tests, it was discovered that the speed of addition on Wednesdays was slowed down by 2.8%. On Fridays it was speeded up by 4.3%.

Cancellation. The Woodworth and Wells cancellation test was used. On Wednesdays the speed of cancellation was slowed down by 7.6%, while on Fridays the performance was speeded up by 5.4%.

Discussion. The effects are more marked and consistent for this group of tests than for those of physical functions or for motor co-ordination. Uniformly on Wednesdays with the administration of 75 grains of bromide there are indications of a retarding effect, showed principally in a reduced speed of performance in these mental tasks. On Fridays, however, due

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either to the effect of a larger amount in the system or the factor of adaptation, there is a uniform acceleration in performance.

FEELINGS OF FATIGUE

The Colgate Personal Inventory F3 was used in this. Although statsitical averages are not on hand for this, the bromide had a *slight* effect, (from 5% to 19% more frequent on bromide than on control days) in the following respects: lessened control of temper; tobacco, candy, and food taste flat; more than the usual effort required to do muscular work; lessened confusion in speech; more forgetfulness in ordinary things. There were *marked* effects 20% or more frequent on bromide than on table salt days in the following directions: presence of a taste in the mouth; increase in feeling of being "pepped up"; less misplacing of things; decrease in the occurrence of bizarre, new, or peculiar ideas.

SUMMARY

Preliminary tests giving central tendencies for a group rather than individual differences show that amounts of sodium bromide as used in the experiment have most marked and significant effects upon such mental functions as lag of attention, speed of addition, and speed of cancellation, in the normal individual. The effects on motor co-ordination are not as marked or uniform. Respiration and cardiovascular functions show some slight effects.

This preliminary experimentation should give encouragement for a systematic study of the effects of sodium bromide in a wider range of test functions and under different dosages with normal individuals as well as for individual differences. The present preliminary experiments would suggest that beneficial effects observed in mental patients from the use of massive doses of sodium bromide is associated to a large extent with the speeding up of mental functions and to some extent with improved motor co-ordination.

We wish to acknowledge the assistance received from Drs. Charles Hutchings and William Wright of the Utica State Hospital in formulating the experimental problem.

The experiment was conducted with the assistance of the following: H. F. Brown, Hilda Drexel Laird, Richard Kehoe, Walter M. Lillie, R. H. Miller, Arnold Sanborn, E. L. Smith, G. F. Smith, F. I. Tomlins, and H. H. Wille, Jr.

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Value of Vaginal Pessary in Obstetrics and Gynecology[1]

By Joseph S. Diasio, M.D.

Notwithstanding the enormous advance in surgery of the last decade which has divided the surgical profession into groups of specialists among whom is numbered the gynecologist, we cannot help dreading that gynecology will sooner or later be absorbed by general surgery. If gynecology is looked on merely as gynecologic surgery, I firmly believe that this fear will become a veritable fact. On the other hand if we bear in mind that gynecology embraces not only operative procedures but also medical and special therapeutic measures we need not alarm ourselves at a threatening peril which will never be fully realized. Therefore I do not hesitate to undertake a qualified defense of a nonsurgical implement such as the vaginal pessary. Indeed this once popular instrument still fills a real need in a certain selected group of cases despite the present day indifference to the pessary on the part of the young as well as the old gynecologist.

The history of the vaginal pessary is very interesting and reveals that its usefulness was appreciated by the pioneers of gynecology from the earliest days of specialization.

At one time every specialist felt it incumbent upon himself to devise new types or modifications of pessaries. Consequently there has been handed down to us a multitude of different forms of pessary most of which are antiquated and often grotesque. For practical purposes only a few models are useful and meet all requirements.

Useful Types of Pessary

Pessaries are narrow, round or oval rings of hard rubber, aluminum, glass, celluloid, soft rubber, copper wire covered with rubber, and other substances. The hard rubber pessary is to be preferred at all times to the soft variety which soon becomes foul and causes a profuse leukorrhea. A description of the Hodge-Smith pessary which is widely used will not be amiss before considering the other popular pessaries. This pessary has two cross bars and two curves, namely, an anterior

[1] From the Department of Gynecology, Midtown Hospital, New York.

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and posterior cross bar and a perineal and pelvic curve, respectively. The pelvic cross bar which is bent more or less sharply upward should be longer than the perineal bar which sometimes is curved downward, and should be behind the cervix, making the vaginal vault taut without exerting too much pressure and averting injury.

In spite of the innumerable types of pessary advocated by their respective adherents, I have found that four or possibly five pessaries fully meet all requirements in the cases selected for treatment.

They are the Hodge-Smith pessary which is useful in the treatment of retrodisplacements, the ring pessary for the management of the prolapsus of the uterus, and the Gehrung pessary preferred in the treatment of the cystocele and the anterior vaginal prolapse where operation is out of question.

In some cases of prolapsus of the uterus where the outlet is large and where the ring pessary is not entirely satisfactory, the Menge pessary is of distinct value, as it rests more or less at right angles to the long angle of the vagina. Again in the aged with prolapsed uterus the glass ball pessary which is from 4 to 6 c.m. in diameter has been found to be exceedingly useful.

THE MECHANISM OF THE PESSARY

It is a fact to be deplored that only a few practitioners are conversant with modus operandi of the vaginal pessary. It may appear incredible, but it is true that many physicians believe that the pessary acts in some mysterious way in restoring a displaced uterus to its normal posture. Strictly speaking this is just what the pessary does not do, for it is only an orthopedic support to retain a corrected displaced uterus in its normal position after it has been mechanically replaced. The replaced uterus then is held in its corrected position by the pessary which draws back the cervix towards the hollow of the sacrum without exerting pressure on the fundus of the uterus. This action is accomplished by the pessary whose posterior cross bar with its pelvic curve fits snugly into the posterior fornix causing the wall of the posterior fornix to be pushed directly upward and backward and the cervix to be indirectly drawn

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in the same direction resulting in the fundus being thrown correspondingly forward. Combined with this action and the splinting of the vaginal walls there is the take in of slack which secures a certain amount of elevation.

Apropos of the ring pessary, the take in of slack is more important than the leverage action just described. For this reason in treating cases of marked prolapse, the ring pessaries are employed and take in much slack producing a hammock-like support of the uterus. The ring pessary is maintained in position by support afforded by the pubic rami.

Indications for the Use of Pessaries

Under certain conditions and in well chosen cases the retrodisplacements and prolapse of the uterus constitute the two most important indications for the pessary treatment.

These two malpositions are so often found conjointly, that it is comparatively uncommon to see extreme degrees of either one without some degree of the other. Unless there is some contraindication, it is better to treat prolapse of the uterus surgically, as this procures immediate abatement of the distressing symptoms.

At present anteversion of the uterus and cystocele and anterior vaginal prolapse are very seldom treated by pessary, although when palliation is desired for some good reason, some practitioners still employ the Gehrung pessary for the treatment of cystocele and anterior vaginal prolapse.

Retroflexion is often characterized by a large and heavy fundus which renders the uterus top-heavy and if a pessary should be applied only very little leverage is afforded. Backward flexions of the uterus are frequently associated with no symptoms whatsoever and the mere presence of such a malposition is not an indication for operation. The latter is warranted only where the troublesome symptoms are definitely caused by malposition of the uterus.

The association of early pregnancy and retrodisplacements is an important indication, and it is here that pessary therapy proves most valuable. As a rule retrodisplacement antedates the pregnancy. It is common knowledge that a retrodisplaced uterus on becoming pregnant is in serious danger of aborting.

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Such malposition of a pregant uterus produced pelvic pressure and is a frequent cause of so-called reflex vomiting.

If the retrodisplacement is not very extreme, a simple manual reposition is sufficient, because the gradual increase in size of the pregnant uterus will lift it above the pelvis and allow pregnancy to continue uneventfully. If, on the other hand, the retrodisplacement is more pronounced, especially if there is a flexion, there is a danger of incarceration of the fundus in the hollow of the sacrum and probable abortion. These cases are greatly benefited by the bimanual replacement of the uterus followed by insertion of the Hodge-Smith pessary which should be worn until the fourth month when the size of the uterus will prevent a return of the displacement.

An equally important indication for the use of pessary is the association of pregnancy with prolapse. It is an established fact that even prolapse of the most exaggerated type does not render pregnancy impossible. Many cases have been reported in the literature in which pregnancy occurred in a prolapsed uterus which was fitted with a ring pessary and worn for the first trimester of gestation after which the uterus lifted itself well into the abdomen. In some cases during the last trimester of pregnancy the weight of the uterus may force the cervix down so that when the patient stands the cervix hangs between the limbs. It is evident that there is theoretically a greater risk of sepsis in such cases than in the normal woman. I have seen a few cases of this type which went through their labors without difficulty or infection. It is interesting to note that in these cases the second stage is virtually skipped, for labor consisted of practically only the first and third stages.

According to recent statistical returns, between 75 and 90 per cent of all acquired retrodisplacements occur in the puerperium. Sometimes a retrodisplaced uterus has been found even in patients who have received immediately after childbirth prophylaxis such as, knee chest position, Beck's "kangaroo walk" and other invigorating exercises for the prevention of malposition of the uterus.

It has been my enlightened experience to find on pelvic examination retroversion of the uterus in patients during the first

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year after confinement. In my practice I have found one out of three patients to have a backward displacement of the uterus on the routine postpartum examination of the pelvic organs six weeks subsequent to childbirth.

As often happens, upon finding a retrodisplacement during puerperium, the uterus should be restored to its normal position. In a certain number of cases the mere bimanual replacement of the uterus without the pessary will be all that is required. Subsequently, the patient should be frequently subjected to careful postpartum examinations so as to make certain that the uterus remains in normal position and does not absolutely require pessary treatment. In a very large proportion of the cases the pessary should be employed, as it is the simplest and best treatment for puerperal retrodisplacements. Usually, only a few weeks of pessary treatment is all that is necessary during which time the subinvoluted uterus, which tends to sag backward, attains a normal size and consistency. After the completion of the pessary treatment there is no tendency to a recurrence of the retrodisplacement. By following the foregoing outline of treatment many women can be saved in later years from the distressing and troublesome symptoms of permanent retroversion, which are almost certain to entail surgical correction. It is therefore obvious that the urgent necessity of early pessary correction of puerperal retrodisplacements is deserving of the practitioner's undivided attention and this important indication alone should be sufficient incentive for every physician to familiarize himself with the subject of pessary treatment.

When we come to regard prolapse in old women we are faced with a problem that deserves serious and intelligent consideration. There is no upper age limit for surgical correction of uterine prolapse in women of advanced years, since we have seen women of 70 and over in good physical health, vigorous and active, and in whom the distressing symptoms of uterine prolapse can be relieved by a justifiable operation. On the other hand, there are women much younger who enjoy poor health and are invalided, where the pessary is the simplest and safest treatment of prolapsed uterus. It may well be said that the treatment of prolapsed uterus in the aged should be gov-

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erned by the patient's health status. Without a doubt most cases will require pessary treatment.

There are three types of pessary that can be used. The hard rubber ring pessary will be of greatest service in those cases of uterine prolapse showing a moderate degree of perineal relaxation. This pessary when applied properly will distend the redundant vaginal vault taking in all the slack and permitting the cervix to lie in its center and the pessary should fit loosely and comfortably with room to introduce the index finger between the pessary and the vaginal walls on all sides. The pessary must make no constant pressure.

In those cases where the perineal relaxation is extreme, a useful pessary is the Menge type which consists of a cross bar piece and a conical stem or rudder. After the insertion of this pessary it is retained by the conical stem which is screwed into the cross bar. In other cases of prolapsed uterus where the perineal floor is gone, another excellent pessary is the glass ball model, measuring 4 to 6 c.m. in diameter. In all of the foregoing cases, frequent examinations should be the rule to obviate the occurrence of ulcerations and the burying of the pessary into the tissues. Also, cleansing douches are of vital importance.

Still another indication for the pessary is retrodisplacements complicated by cystocele, partial prolapse and rectocele with distressing symptoms where operation is contraindicated by serious constitutional diseases such as chronic valvular cardiac disease, pulmonary phthisis or advanced nephritis. While the pessary does not produce a permanet cure, it is sufficiently palliative to make the patient more comfortable.

The pessary may also be employed in many cases in which, on purely physical grounds, the operation is indicated clearly enough, but declined for social, economic or capricious reasons.

Again, the pessary should be used in patients with retrodisplacements or prolapsed uterus who desire more children, as operative repair is no guarantee that future labors will not again break down the repaired supporting structure.

Last but no least, the pessary is valuable in determining the pathologic importance of retrodisplacements. That is to say, the pessary is used often as an aid in determining the role

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of the uterine displacement in the production of the symptoms. If the latter are relieved by restoring the uterus to its normal position and holding it by means of the pessary, we can reasonably and safely assume that the uterine malposition is the cause of the symptoms and operation should not be advised.

Contraindications

One of the most important prerequisites for the insertion of the pessary is the replacement of the uterus approximately to its normal position. It is obvious that in those cases where the uterus cannot be adequately replaced by bimanual manipulation, it is futile to apply the pessary, since the latter is meant only to retain in position a replaced uterus—a fact which is realized and appreciated by only a few practitioners.

Another contraindication to pessary treatment is the existence of marked perineal relaxation. Since the pessary derives its elevating action largely from the perineal muscles, it should be readily perceived by all that when the muscular floor is lacking and the relaxation of the perineum is marked no benefit will be derived from a pessary which is hardly held in position.

Where there is a fixation of the uterus from chronic pelvic inflammatory disease coexistent with retrodisplacement the pessary is absolutely contraindicated. An attempt to insert a pessary will not only be useless but also harmful and producing discomfort and pain.

Replacement of the Uterus

At this point it is well to again emphasize that the purpose of the pessary is merely to keep the uterus in place after it has been restored by some other means. Before replacement of the uterus is attempted the bladder and the rectum should have been previously emptied, the corset removed and the patient placed in a dorsal recumbent position. Almost always the uterus, when not adherent, can be restored by bi-manual manipulation. With pressure exerted by index and middle fingers of the vaginal hand in the posterior fornix, the fundus is gently lifted above the promontory so that the fingers of the abdominal hand can palpate the fundus and invaginate the ab-

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dominal wall behind it. Now the fingers of the vaginal hand are shifted to the front of the cervix pushing the latter backward synchronously with the forward pressure of the abdominal hand. If no pain is experienced by the patient, reflex muscular spasm of the abdominal wall does not occur and the replacement of the uterus is completed. Occasionally, the above method after repeated efforts may fail to bring success and, then, the patient is placed in the knee-chest posture and a Sims' speculum is introduced into the vagina making traction over the perineum and allowing air to rush in and balloon the vagina in which cotton or gauze sponge on a sponge holder makes pressure in the vaginal vault against the fundus uteri until it has become disengaged from the position in the cul de sac. Some authors recommend traction on the cervix by tenaculum forceps. This is hardly necessary in nonadherent uteri and is a risky procedure which is mentioned for the purpose of condemning it.

In a few cases owing to adverse conditions and after repeated failures with the above technics, uterine replacement can only be achieved under an anaesthetic.

Fitting and Insertion of Pessary

In order to secure adequate treatment of retrodisplacements, the pessary must be selected to fill the needs of the individual case. The pessary should be sufficiently long so that the lower pole is just concealed within the outlet. This can be measured on the index finger, the tip of which is passed up behind the cervix into the vaginal vault which is made taut and the level of the symphysis pubis within the introitus is marked on the index finger. The width is estimated by separating two fingers in the vagina and stretching the lateral fornices, then withdrawing the fingers and measuring the outside distance to correspond to the width of the pessary. In unusual cases having peculiarities of anatomical confirmation, the pessary can be shaped after first boiling it to make it soft and easily flexible, and then molding it into desired shape and then setting it by immersing in cold water for a few seconds.

The introduction of the pessary is an art acquired by practice only, nevertheless, its insertion can be simple enough if

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the procedure outlined below is followed. The perineum is retracted by two fingers of the left hand. The pessary is grasped at the narrow anterior (perineal) end by thumb and index finger of the right hand and is thus introduced obliquely into the vagina and pushed up by gentle and firm pressure as far as possible toward the vault. The index finger of the left hand is now introduced into the vagina until it is in contact with the wide posterior (pelvic) end which will almost always be found to lie just in front of the cervix, instead of just behind it, as it should. This finger exerts pressure on the posterior rim to drive it home into the posterior fornix. The lower end of the pessary should now lie just inside of the introitus. A finger is passed between the pessary and the vaginal wall to make sure that no undue pressure is exerted by the pessary. Too much pressure causes an ischemia with subsequent ulceration and necrosis.

Essentials of a Well-Applied Pessary

A well fitted pessary should antevert the uterus without pressing on its body, should not cause pain or discomfort to the patient, should not make the patient aware that she is wearing it, should not cause any discomfort during coition, should not overstretch the vaginal wall, should not be so long as to impinge the urethra against the symphysis pubis and, lastly, the pessary should not be so small that it will slip out if the patient strains. A proper fitting pessary should place the vaginal vault moderately upon the stretch in order to give sufficient support to the uterus and it should be possible to pass a finger easily about the pessary.

After-Care of the Pessary Patient

An examination should be made a few days after the insertion of the pessary to make certain that the pessary fulfills its object of keeping the uterus in anteflexion and also to ascertain the presence of any pressure marks or possible injury to the tissues. If the examination reveals that the uterus is being satisfactorily retained and that there is an absence of pressure or vaginal irritation, the patient is instructed to report in

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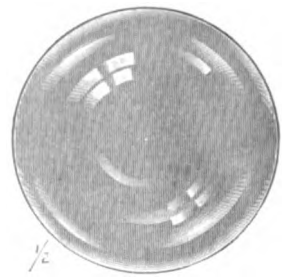
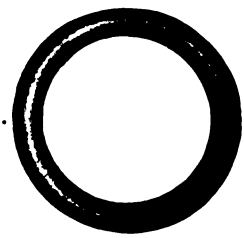
1. GEHRUNG'S PESSARY
(10 sizes, from 30 to 75 mm.)

2. SMITH'S PESSARY
(9 sizes from 60 to 100 mm. long)

3. HODGE'S PESSARY
(8 sizes, from 60 to 95 mm. long)



4. GLASS BALL PESSARY
(6 sizes)



5. HARD RUBBER RING PESSARY
(9 sizes, 50 to 90 mm. diameter)

6. MENGE'S PESSARY WITH DETACHABLE STEM
(9 sizes, 50 to 90 mm.)

[*Courtesy of Kny-Scheerer Corp., N. Y.*]

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about a month for a similar examination and afterwards every two months.

While wearing the pessary the patient is directed to take douches once or twice daily, depending on the amount of discharge, since the pessary, being a foreign body, stimulates secretion in the vagina. The cleansing douche should be preferably one containing a mucus dissolvent such as bicarbonate of soda, borax, etc. A douche that I have found very efficacious is one made by dissolving the contents of two capsules of Disulphamin (1 grain) in a pint of lukewarm water. In addition, the patient is warned that if any pain is experienced or a bloody discharge (evidence of vaginal irritation or ulceration) is present other than at the time of the menses, she must report at once to the office. In such cases, the pessary should be kept out for periods of several weeks.

As an adjuvant to the pessary, I advise my patients to assume the knee-chest posture once or twice daily, if only for a few minutes at a time. This enables the uterus to swing forward into good anteflexion, thus allowing the pessary to secure a fresh grip, as it were.

During the office visits the pessary is removed by a procedure which is exactly the reverse of the introduction, and it is cleansed in water and soap. Before reinsertion of the pessary, a speculum examination is made to reveal absence of pressure or irritation. The latter, if present, should be treated with applications of five per cent silver nitrate solution for a few weeks before reapplication of the pessary.

In cases where conception occurs during pessary treatment, the patient should visit the physician every three weeks, when the pessary should be taken out and cleansed. The pessary may be worn up to the fifth month when the size of the uterus will prevent a return of the displacement.

It is well known that many accidents have occurred through the improper use of pessaries. These cases give evidence of negligence on the part of the patient or physician and should not be regarded as proof that a properly fitted pessary, with adequate supervision is not a sound procedure.

When it is remembered that the success of no operation can be guaranteed, that no anaesthetic is absolutely safe, that there is always a risk of postoperative adhesions and postoperative sepsis, it is surely not asking too much when it is suggested that before these risks are incurred, the pessary should be given a trial.

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What Makes a White Man's Skin the Color It Is?

By Herman Goodman, B.S., M.D.

"What makes a white man's skin the color it is" arouses comment from internes and post graduate students of dermatology. The first reaction of the person questioned has been —absence of pigment. A moment's further consideration emphasizes the fact that this answer cannot be correct—certainly, not complete.

There is a fixed pigment in the white man's skin, and his skin is not white under normal conditions. A pearl white skin is found in the abnormal state of leucoderma and/or vitiligo. The reason for mentioning both of them in this manner is to indicate that they are regarded as one disease by some, and as two distinct diseases by others.

The fixed pigment of the white man's skin is probably the same as found in the colored man's skin—the quantity is less. The palm of the negro appears whiter than other parts of his skin, yet his palms are sites of pigment.

The second type of pigment which influences the appearance of the white person's skin is the wandering pigment, or that called forth by exposure to vital ultraviolet in people who have the faculty of pigment formation. The pigment of temporary freckles is of this variety.

The contents of the blood vessels of the skin have a share in the color of the white man's skin. The influence of the presence of blood is evident in the flush of fever, the pallor of faintness, and the blush of embarrassment.

Another factor in determination of the cutaneous covering has never had the prominence it deserves. The granules of the cells of the granular layer of the epidermis have an effect on incident white light which differs from that of skin pigment. These granules refract light. A thick granular layer of cells causes us to see white. In the absence of a thick granular

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layer, the appearance is pink. A corn has a thick granular cell layer, and appears white or whitish, even in a negro. The lips have a very thin layer of granular cells, and they appear pink.

The granular layer cells are the precursors of the horny layer. A thick granular layer is associated with a thick horny layer. The palm has many layers of granular cells, hence the palm appears lighter in color than the rest of the skin. The mucosa, as of the lips, has a very thin granular layer, and its color is pink.

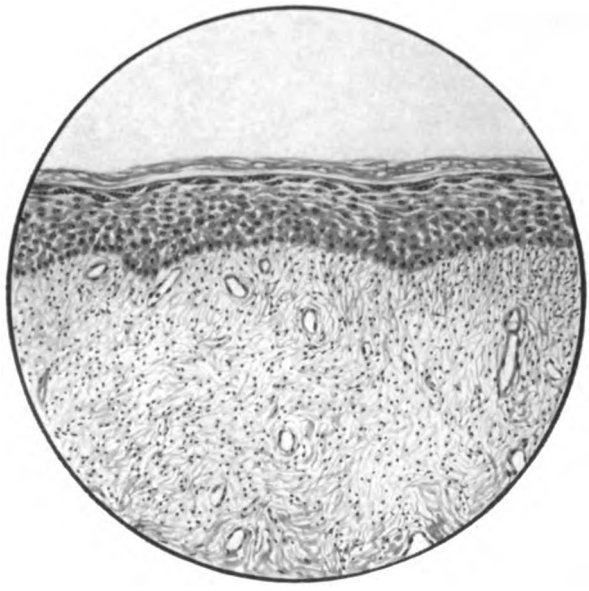

FIG. 1.—Histology of lip mucosa. Note thin granular cell layer beneath horny exterior.

The half moon of the nail represents an accummulation of granular cells. The half moon is, of course, lighter than the adjacent nail. The color of the body of the nail is influenced by the subungual blood pool ridges. The nail body appears lighter in color when pressed upon so that the blood is forced out of the longitudinal ridges.

Examination of the skin under filtered ultraviolet or "black light" offers some interesting facts. The negro's skin does not fluoresce under its radiation—all the ultraviolet is absorbed

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and very little is transformed to visible radiation. The vitiligo or leucoderma skin appears as a vivid white under the black light. Sunburn of the white man's skin, even if the sunburn is no longer visible in ordinary white light, appears dark under the "black light." An invisible sunburned area of negro's skin appears whitish examined under filtered ultraviolet. This fact was the basis for my proposal several years ago of the sunburn stencil or tattoo in the identification of new born babies.

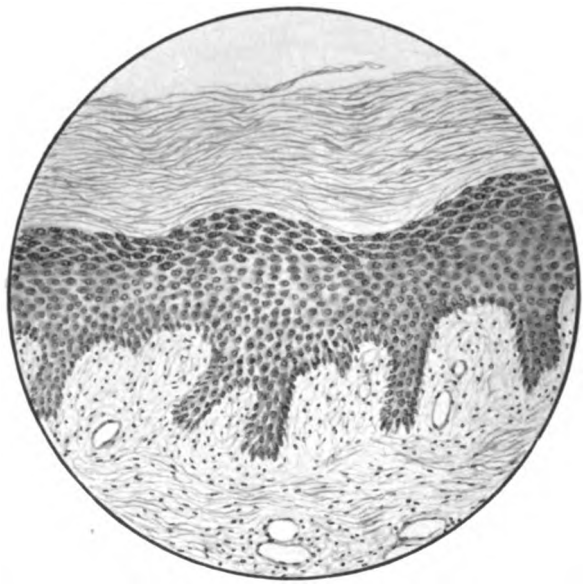

FIG. 2.—Histology of palm. Note thick granular cell layer beneath broad horny layer.

This communication offers some factors which determine the color of the skin and the mucosa. The problem is not as simple as dependent solely on the presence or absence of pigment in the basal cells and contiguous portions of the corium. The relationship of granular cells and hornification of the outermost of the protective layers of the epidermis offers opportunity for further study.

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BOOKS

Every physician in active practise knows that there are many times when the prevention of conception is imperative. When he believes that he has such a case, instruction in how to prevent conception is absolutely essential. There may be many books that contain this information, presented fairly, clearly and scientifically; but this reviewer has never yet been so fortunate as to run across one. For this reason, *Practical Prevenception: or The Technique of Birth Control*, by WILLIAM J. ROBINSON (The American Biological Society, Hoboken, N. J., 1929), will find a very cordial reception; for it is a fair, clear and scientific presentation of this very essential subject. The pros and cons of each of a number of methods (for there *are* both pros and cons to every method, and the physician should know both before recommending any of them) are marshalled for the physician to consider; and there is no reason for his prescribing in the dark, with this comprehensive little guide by Dr. William J. Robinson at hand.

When the president of the Medical Society of Virginia appointed a historical committee, he may have had in mind something more than roster of physicians, past and present. He could hardly have envisioned quite such a treasure of medical history as the chairman, Dr. WYNDHAM B. BLANTON, has written, under the title *Medicine in Virginia in the Seventeenth Century* (The William Byrd Press, Richmond, Va., 1930)—with the promise of subsequent volumes to cover the eighteenth and nineteenth centuries. The book is a veritable storehouse of things that the doctor who is interested in the history of his craft and in the history of his country has wanted to know, and has never known just where to find out. The illustrations of rare and interesting old title pages of books common to early medical practitioners suffice of themselves to make the volume one to covet for permanent possession; and these are but a small percentage of its treasures. Interesting bits about medical practice in Jamestown; medicine under the London Company; medical fees; women and medicine; simples and therapy—crowd each other for elbow room. And elbow room is given them generously, in a wide-margined, richly gotten up bit of bookmaking that will make the medical bibliophile's mouth water. Virginians have not been notable for their modesty, when it comes to proclaiming the virtues of their state; we predict that there will be no living with Virginia doctors, from now on. Dr. Blanton

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and the Medical Society of Virginia have set themselves a perilously high standard to follow, when they set to work on volumes two and three; may the present reviewer be there to judge, when they issue from the William Byrd Press.

The frontispiece to Sir HUMPHRY DAVY ROLLESTON'S *The Right Honorable Sir Thomas Clifford Allbutt* (Macmillan and Co., London, 1929), makes the reader of this memoir want to become acquainted with its subject at once. And the biographer has been fortunate in carrying out in the text the impression of kindly, wise, tolerant scholarship and loveable manhood that the picture leads one to expect. Eighty-nine years old when he died in 1925, Sir Clifford had passed through some remarkable periods in the history of medicine, and in the history of the greater world of which he was so genial and enthusiastic a sharer; but he was in the forefront of scientific research until the day of his death. His Notes on the Composition of Scientific Papers should be deeply pondered by medical writers—especially this gem: "Never compose when tired, nor in the false confidence of tea and late hours. At this hour the composition seems to be beautiful and spontaneous; in the colder light of morning it turns to ashes."

FRANK HOWARD RICHARDSON, M.D.

Books on Gynecology and Obstetrics

Principles and Practice of Obstetrics. By Joseph B. DeLee, Professor of Obstetrics, Northwestern University Medical School. Fifth Edition, Thoroughly Revised. Large octavo of 1140 pages, with 1128 illustrations, 201 in colors. Philadelphia and London: W. B. Saunders Company, 1930.

This is the fifth edition of DeLee's encyclopedic work on obstetrics, presented comprehensively in an entertaining and informal style in one volume. Both the text and the innumerable illustrations have been carefully revised, with many whole chapters rewritten and addition of new pictures. The sequence of subject presentation is admirable, very instructive and absorbingly interesting. It begins with a well digested section on the physiology of pregnancy and followed by extraordinarily thorough sections devoted to the physiology of labor, the physiology of the puerperium, the hygiene and conduct of pregnancy and labor, the new born child, the pathology of pregnancy, etc., and logically closing with an excellent section on operative obstetrics which is beautifully illustrated.

All of the recent advances made in obstetrics are masterfully treated in this treatise. The scope of this volume is twofold and to use the author's own words—"to give the student as much as is necessary for a proper comprehension of an important subject and yet not overburden his study hours, and to supply the practitioner with a wealth of detail and numerous illustrations of how to do his work." The author emphatically stresses that there is at the present time too much interference with the natural process of labor by men who do not know how, despite the prevalent, abominally high fetal and maternal mortality in the United States. This is particularly true in the case of forceps delivery. Also, mention is forcibly made regarding the achievement of asepsis in the home in curtailing the obstetric mor-

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tality and morbidity. An exceptionally good feature of this book before we forget is the ample space and full consideration given to the treatment of the various toxemias of pregnancy and other obstetrical conditions.

In a word this publication contains a mine of valuable and detail data on the subject of obstetrics, brought by revision and addition up to the minute, and will be exceedingly helpful and intensively interesting to the student of obstetrics, the obstetric specialist and the general practitioner.

Gynecology. By William P. Graves, Professor of Gynecology at Harvard Medical School. Fourth Edition, Thoroughly Revised. Octavo volume of 1016 *pages, with* 562 *illustrations,* 128 *in colors, Philadelphia and London: W. B. Saunders Company,* 1929.

This is a thorough revision and the fourth edition of Graves' Gynecology which represents an exhaustive and authoritative treatise on the subject of gynecology. It is written in an excellent style marked by brevity, accuracy and simplicity that is more than delightful to the reader. The volume is profusely illustrated and logically divided into three parts. The first part, covering the physiology and relationship of gynecology to the general organism, is dealt with admirably. Considerable space is allotted to the physiology of menstruation and ovulation, endocrinology and organotherapy, etc., and the most recent advances and interesting discoveries made in the last decade are presented in an up to date manner.

Gynecologic diseases are treated in the second portion of this book. Some excellent features of this important part of the specialty are the exhaustive monograph on endometriosis, the new classification, with the most recent theories of histogenesis of ovarian tumors, the presentation of the subject of sterility to meet the latest ideas of etiology and treatment and the supplement of other new topics as protein therapy, the sedimentation test, etc. Last but not least is the scientifically accurate and amply comprehensive presentation of modern treatment as applied in the various gynecologic conditions—a feature given very little space in most books. The last part of the book is devoted to operative gynecology which is treated splendidly and with much clarification, including the descriptions of various new operations. In order to render this volume more complete, the author has appended to this edition a long list of references consulted in the preparation of the new material. This certainly should be of great value to those who wish to study further any particular phase of gynecology treated in this volume.

This excellent and comprehensive book is recommended without hesitancy as a valuable addition to the library of the general practitioner and gynecologist.

Obstetrics. By J. Whitridge Williams, Professor of Obstetrics, Johns Hopkins University; Obstetrician-in-Chief to the Johns Hopkins Hospital, Baltimore. New Sixth Edition. Pp. 1157. *New York: D. Appleton and Company,* 1930.

This book, long recognized and accepted as the standard text-book on Obstetrics in the American medical colleges, has been entirely rewritten from beginning to end in a masterly clear-cut and accurate manner. It is a timely, stimulating and indispensable inventorial index of obstetrics which

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is completely and comprehensively presented for the general practitioner and the obstetric specialist of to-day. The text has been markedly clarified by revision of entire chapters and sections and by replacement of old illustrations by new and better ones, besides the addition of some forty new illustrations.

Some commendable features of this book are the judicious additions of the recent advances made in the anatomy, physiology, development and pathology of the generative organs as well as the clinical aspects of obstetrics. The topics of menstruation and ovulation have been rewritten to include the interesting researches and observations carried on in all parts of the world by various workers. Also, the value of X-ray in obstetrics, the recent work upon folliculine, the relationship of the anterior pituitary body to pregnancy and the hormonal test of pregnancy have been thoroughly and intelligently considered. The subjects of obstetrical anaesthesia, the newer methods of the induction of labor, the treatment of infected abortions, the toxemias of pregnancy and puerperal infection have been given particularly full reconsideration. At the end of each chapter there are long lists of references to the literature which may prove of inestimable value to the reader who wishes to delve further into any particular phase of obstetrics.

All in all this volume is an exposition and the last word of the science and art of obstetrics and should be valuable and serviceable to those interested and engaged in a large or small obstetrical practice.

Text-book of Gynecology. By Arthur H. Curtis, Professor and Head of the Department of Obstetrics and Gynecology, Northwestern University Medical School; Chief of the Gynecological Service, Passavant Memorial Hospital, Chicago. 380 pages with original illustrations. Philadelphia and London: W. B. Saunders Company, 1930.

The subject of Gynecology in this book is comprehensive, practical and well-digested, and treated in a manner most delightful to the busy general practitioner. It is simply and tersely written and is a record of the author's personal experience which renders the reading of it intensively interesting and enjoyable. For the most part the illustrations are original and accurate, and are actually reproduced from the writer's own cases. The usefulness of these drawings in portraying the steps and clarifying the text of the operative technic cannot be overestimated.

Dr. Curtis has masterfully succeeded in his effort to put forth a complete yet compact work on gynecology as adequately illustrated by the last section of this book on special topics, as the examination of the gynecological patient, the early months of pregnancy from a gynecological aspect, the appendix and the large intestine in relation to gynecology, gynecological urology, radiotherapy, anaesthesia, etc. Lastly, the wealth of information on gynecological therapy, the complete and correct descriptions of all the modern diagnostic procedures, together with the pleasing and conversational style in which the entire book is written should make this volume a very desirable addition to the general practitioner's library. J. S. DIASIO, M.D.

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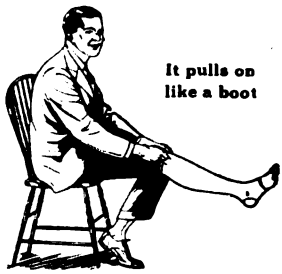

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